

Increasing emergency admissions among older people in Scotland: a whole system account

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Summary.

Background.

Steadily rising numbers of emergency inpatient admissions have been a major source of pressure for the NHS over the past twenty years and more. Emergency admissions among the very old have generated particular pressures. One of the main tasks of the Whole System Project at ISD Scotland has been to develop a better understanding of the whole system dynamics underlying trends in emergency admission, and particularly multiple emergency admissions, among older people. This is aimed at helping us to identify points of leverage in the system where investment or redesign will have maximum impact in improving the functioning of the whole system of health and social care and enabling the delivery of more appropriate care.

Section I. Trends in emergency admission.

Patients aged 80 and over have accounted for almost all of the increase in bed days occupied by inpatients admitted as an emergency between 1981 and 2001. This has been the product of three separate trends. Firstly, rates of emergency admission per head of population have been rising steadily over the last twenty years with the rate of increase particularly high among the oldest age groups. Secondly, after a period when lengths of stay after emergency admission were falling steadily for all age groups, lengths of stay have remained quite stable since the mid-1990s among older age groups. Finally, the last twenty years have seen a rapid increase in the numbers of older people aged 80 and over.

Most of the increase in bed days occupied by patients aged 80 and over can be attributed to rapidly rising numbers of those patients who were admitted as an emergency four or more times in a five year period. In the period 1996-2000, there were around 20,000 of these patients.

Using a narrower definition of multiple admission, rapidly growing numbers of older patients admitted three or more times in a single year made a disproportionate contribution to the overall increase in the use of inpatient beds. In 2001 there were just under 5,000 patients aged 80 and over admitted three or more times in a single year.

These trends are not limited to any narrow group of diagnoses. By and large, the distribution of diagnoses among older patients with multiple emergency admissions differed little from the distribution among those with one or two admissions in a year. The fastest growing group of diagnoses among older patients with multiple emergency admissions was 'signs and symptoms'.

Section II. Toward an explanation.

An ageing population?

The ageing of the population has played a part in explaining the overall rise in emergency admissions. For example, the number of people aged 85 and over in Scotland almost doubled from 48,000 to 88,000 between 1981 and 2001. However the size of the 'younger' old age groups (65 to 79) barely changed. The bulk of the increase in emergency admissions has occurred within age groups. In 1981, there were just over 20 emergency admissions for every 100 people aged 80 and over. By 2001 there were 43 per 100. The ageing of the population has also acted to amplify the effects of the increasing proportion of older people who experience multiple emergency admissions.

A less healthy population?

Does the rapid increase in emergency admissions reflect the fact that the older people are becoming less healthy? On the contrary, almost all the available evidence – whether at a Scottish level, a British level or from the United States – suggests that the older population, age for age, is becoming more rather than less healthy. Therefore changing levels of morbidity cannot have contributed to rising levels of emergency admission.

Social and organisational factors.

The increase in emergency admissions (and multiple emergency admissions) among older people has been primarily the result of how the care system has worked to deal with older patients rather than of any increase in ill health or morbidity.

Social factors may be relevant. Growing numbers of older people are living alone. In the last decade for example the number of people aged 85 and over who live alone has increased from 30 thousand to 44 thousand. There has been a decline in NHS long-stay beds and alongside the current squeeze on residential care places this is likely to have led to an increase in the number of frail older people living in the community. There may have been a decline in the capacity and willingness of society, and families in particular, to provide informal care.

These factors may have increased the demand for formal care directed at the hard-pressed primary and social care sectors. To the extent that these sectors have been unable to deal with this increased demand, the provision of care will have been diverted towards the acute sector in the form of emergency inpatient admission. This may be particularly true of older people with chronic and often multiple conditions. The impetus towards inpatient admission may have been reinforced by the availability of beds freed up by the shift of elective treatment from an inpatient to a day case context and by 'passive' admission policies whereby the default and often unexamined option is to admit an older person to inpatient care.

The final 'facilitating factor' in explaining the rise in emergency admissions may be one of the most fundamental but also the most elusive in terms of direct evidence. This is the historical legacy of fragmentation in the health and social care system whether in the form of the split between the primary and acute sectors, specialisation within the acute sector or the divide between health and social care.

Section III. Implications and conclusion.

The general direction of health and social care policy in Scotland would suggest that we are in a good position to address the issues which have been discussed. The emphasis is on integrated working – whether across the health and social care boundaries or, within health, between the acute and primary care sectors – aimed at providing seamless care.

Analysis of patterns and trends in inpatient admission may help to focus and target interventions aimed at providing more integrated care. Intensive case management applied to selected groups of older people has been developed in the United States as a response to similar issues of spiralling hospital admissions among older people. The philosophy has been to focus co-ordinated care on a small number of heavy users of the care system with the aim of preventing the build up of crises leading to expensive, avoidable and sometimes traumatic inpatient admissions.

In the broadest terms, recent decades have seen an increase in the needs of older people for care in the most general sense – social as well as medical. The need is for older people to be looked after on a continuing and preventative basis. The rapid rise in multiple emergency admissions among older people suggests that the care system has tended to meet this demand in the form of isolated episodes of acute emergency inpatient care rather than in the form of co-ordinated, integrated patient-centred care which may be more appropriate.

Introduction

Rising numbers of emergency inpatient admissions still represent the single greatest source of pressure on the NHS in Scotland. As well as the direct pressure of coping with the admissions themselves, the effects are felt throughout the system. Recent analysis of Scottish data confirms that over 90% of all delayed discharges occur after emergency admission. One of the main barriers to bringing down waiting times for elective procedures is the pressure on resources and the direct impact on available beds brought about by rising emergency admissions.

This paper is primarily an exercise in explanation. The aim is to present a systematic account of why emergency inpatient admissions, and in particular multiple emergency admissions, among older people have been rising steadily in Scotland for at least the last two decades. The objective is to help draw practical conclusions on the basis of a better understanding of the whole system dynamics underlying rising emergency admissions among older people.

To a large degree the paper represents an exercise in *historical* explanation. Data on hospital admissions is complete at a national level only until the end of 2001. The last three to four years in Scotland have seen a range of policy initiatives which may well have effects on the trends in question. These would include for example the greater emphasis on chronic disease management in primary care, the introduction of integrated care teams as part of the Joint Futures agenda and various initiatives aimed at redesigning the admission process. Their impact is likely to have been too recent to show up in the trends we are considering.

The paper is not about the evolution of social and health policy. A comprehensive survey of the evolution of health policy in Scotland can be found in a recent publication by the Nuffield Trust (Woods and Carter, 2003).

The paper adopts a whole system approach. However, this does not mean that we have undertaken an account of the role of every element of the whole system in explaining rising emergency admissions. Some elements do not appear in the explanatory account. However, there is no necessary correlation between apparent lack of a role in the explanation and potential importance in providing a solution. Certain elements in the spectrum of care are likely to play a crucial role in providing more appropriate models of care even though they are not highlighted in the explanation. Particular examples would be self-care, community care, housing, accident and emergency services, the ambulance service, the voluntary sector and the spectrum of health and social care roles which are beginning to contribute to integrated care such as community nurses, occupational therapists, physiotherapists and social workers.

Structure of the paper

In the rest of this introductory section the background to the paper and the approach taken are set out.

Section I presents trends in patterns of emergency admission in Scotland over the last twenty years and more. The main parameters presented are numbers of emergency admissions, rates per head of population, bed days occupied and numbers and rates of multiple emergency admission.

Section II presents an explanation of these trends. The role of demographic change and the role of the level of morbidity in the elderly population are assessed. The bulk of the explanation however lies in how the whole system of health and social care has dealt with the care of older people. In particular patterns of social change which may have had an impact on the availability of informal care are examined. Primary care is seen as functioning as an 'amplifier' whereby the effects of increased demand for formal health care in general are translated into disproportionate effects on the number of emergency inpatient admissions among older people. Consideration is given to what could be regarded as 'permissive' factors: the availability of beds freed by the shift to day case elective care and the role of 'passive' hospital admission procedures. Finally there is a brief look at the extent to which it might be 'the way the system functions' rather than pressures in any particular part of the system which has served to push up emergency admissions among the elderly.

Section III is an attempt to draw out some of the implications of the earlier analysis.

Background and approach

This paper reports on one of the main strands of work carried out by the Whole System Project at the Information and Statistics Division of NHSScotland. This work has focussed on understanding the dynamics underlying the steady and long-standing increase in emergency inpatient admissions, and in particular multiple emergency admissions, experienced by older people in Scotland over the last twenty years and more.

The Whole System Project was initiated in response to a question posed by ISD Scotland's NHS stakeholders: what has been causing the continued, year-on-year increase in pressure experienced by the NHS in Scotland? The work carried out to answer the question has been able to draw on earlier work concerned with rising numbers of emergency admissions and patients with multiple emergency admissions (Kendrick, 1996; Scottish Executive Health Department 2000; Wood and Bain, 2001; Chief Medical Officer 2002)

It has long been apparent that an adequate understanding of rising emergency admissions among older people can only be gained by adopting a whole-system approach. Patterns of emergency inpatient admission are the

outcome of a complex network of causal influences spanning the whole system of health and social care and the society in which it is embedded.

The whole system approach is one which is becoming increasingly influential in health and social care policy (Audit Commission, 2002; Harrison, 2001; NHS Modernisation Agency, 2001; NHS Wales, 2002; Wanless, 2002). In Scotland a whole system approach is implicit in the emphasis on partnership and integration in the major policy drivers of recent years in particular the Report of the Joint Futures Group and Partnership for Care, Scotland's Health White Paper of 2003 (Woods, 2001; Scottish Executive, 2000; Scottish Executive, 2003)

As a concept or simply just a phrase 'whole system' is becoming ubiquitous in discussion of health and social care. It can mean different things to different people. There is sometimes a danger that the concept is used as little more than an empty buzzword. The whole system approach is far too important for that. In the Whole System Project we have maintained four principal perspectives on the whole system which have served to orientate the work we do. An outline of these perspectives will help to provide some conceptual underpinning for the rest of the paper.

Perspectives on the Whole System.

1.The causal system. From this point of view the whole system of health and social care in Scotland and its social environment is a complex network of cause and effect relationships. 'A network of causal relationships' is the simplest and most general definition of a 'system'. In a system as complex as health and social care, changes in one part of the system may cause ripples of consequence throughout the rest of the system. Pressures and bottlenecks in one area may cause overflow effects elsewhere. In these terms, an explanation of rising emergency admissions is a mapping of the particular strands of cause and effect within the overall system which have converged to produce this particular major result.

Figure 1 presents a general picture of the whole system of health and social care. It is not a detailed map or even less the specification of a quantitative model. It is simply a reminder of the kinds of connections we need to take into account in undertaking a whole system explanation. It must be remembered that we are concerned with mapping only one segment of the whole system: that which determines emergency admissions.

This perspective on the whole system points us towards trends and processes of change unfolding gradually over the long term. We are often unaware of these processes and yet they can combine to produce many of the most intractable problems which we face – such as rising emergency admission among older people.

As Senge puts it we need this perspective to wrench our gaze away from a fixation with events. Although we may be programmed at a very deep level to

focus on events of immediate relevance 'The irony is that, *today*, the primary threats to our survival, both of our organisations and our societies, come not from sudden events but from slow gradual processes ...' (Senge, 1990)

2. The data system. Scotland is blessed with one of the best sets of data in the world on historical patterns of activity in the acute sector of health care. There is comprehensive data on hospital admissions, linked at patient level, going back over twenty years. This gives us an unparalleled opportunity to map and describe the relevant trends in patient activity. Analysis of the configuration of the trends provides us with invaluable indications as to what might be causing them.

However we must not lose sight of the fact that for many of the most important areas of the whole system we have very little data or data which is less comprehensive in terms of coverage and trends. We need to do everything we can to give these 'data-deficit' areas the role that they deserve in the explanation.

The structure of the explanation cannot be determined by the availability of systematic data. Where a particular explanatory factor is important (e.g. levels of morbidity, availability of informal care) and yet precise data is lacking we must use every means at our disposal to do that factor justice despite inadequacies in the empirical base.

The data analyses presented in this paper consist primarily of the description of relevant trends. Analysis of the whole system is obviously fruitful territory for the application of systems modelling software. The prime example at a national level is perhaps the Whole System Model developed at the Department of Health in England (Dost, 2003). System dynamics modelling is also being increasingly applied at a local level to model systems of care and address particular issues (Woodville Consultancy, 2003). The analyses in this paper represent an important element of the groundwork for any such modelling exercises in Scotland. Until we have a better understanding of what the causal connections in the system actually are, it is difficult to model them.

3. The organisational whole system. This perspective addresses the extent to which the delivery of health and social care works as a whole system in organisational terms. This is by far the most common context in which a whole system approach is adopted. As Harrison has pointed out, the term 'whole systems' came into use into official documents in the United Kingdom in 1997 (Harrison, 2001). Organisational whole systems thinking is increasingly influential in health and social care management (e.g. Porter-O'Grady, 1997; Pratt et. al. 1999; Audit Commission, 2002). The emphasis is on making the various parts of the health and social care system function together as a single system rather than as separate 'silos' at all relevant levels: from high level management structures (e.g. the unified Health Boards and Community Health Partnerships currently evolving in Scotland) to the implementation of multi-disciplinary working at the front line of health and social care delivery.

This organisational perspective on the whole system is relevant to the work of the Whole System Project and this paper in particular in two ways.

On one hand the work that we do cannot just be an abstract analysis carried out in isolation from the working of the care system. The analyses and ideas in this paper have been developed as part of a process of continuous dialogue with those responsible for developing and delivering services. The analysis is worthwhile only if it makes a practical contribution to improving the ability of the health and social care system to deliver appropriate care.

On the other hand an emerging theme of the analysis is that the extent to which the health and social care system does not currently function as an integrated whole system may itself form a significant part of the explanation of why emergency admissions among older people are steadily increasing. In turn this issue is closely related to the fourth important perspective on the whole system.

4. The patient experience of the whole system. 'Patients see one system' (Scottish Executive, 2003). However fragmented the organisational arrangements which determine how a patient receives care, however complex in organisational terms might be the patient's journey, each patient still has one experience of the system. The whole system comes together, is embodied, in the experience of each individual.

The driving policy imperatives in health and social care in Scotland at present are to ensure that the patient's experience of care is not disrupted by organisational discontinuities and that the patient is treated as a whole person rather than as an aggregation of isolated episodes of care.

The fact that Scotland possesses data on hospital admissions which is linked on a patient basis enables us at least to start the process of analysing treatment patterns in terms of patient histories rather than individual episodes of treatment. It must be remembered that the linked data represents only acute inpatient episodes, and therefore reflects only a fragment of the total experience of care. The majority of a patient's contacts with the health and social care system – GP consultations, District Nurse visits, informal care - have data sources which are less well-developed and are not linked on a patient basis. These elements of the patient journey must be to a large extent imputed.

However it is only by maintaining this perspective of the complete patient experience of care that we can fully assess the true significance of the aggregate trends we are able to describe and the organisational imperatives and patterns of social change we discuss.

Section I. Trends in emergency admissions among older people.

Data

The analyses presented in Section I are based on the linked set of SMR01 hospital discharge records held at ISD Scotland. An SMR01 record is completed whenever a patient is admitted as an inpatient or a day case to an NHSScotland hospital or is transferred between hospitals or to the care of a different consultant. SMR01 records cover non-psychiatric, non-maternity hospitals and for this exercise dental hospitals have also been excluded.

In addition SMR01 episodes for the specialty of Geriatric Long Stay have been excluded from the entire analysis. This applies to number of admissions, length of stay and occupied bed days.

The individual SMR01 records are linked using probability matching. The accuracy of the linkage is of an order of magnitude of 99%. We thus know which records refer to the same patient and which records are part of the same stay in hospital.

It must be stressed therefore that the emergency inpatient admissions analysed in this paper exclude transfers within the acute hospital system. They represent patients 'coming in through the doors of the system'.

Lengths of stay. Length of stay is calculated on a 'whole stay' basis. In other words if a patient is admitted and then transferred to a different specialty or hospital (thus generating a new SMR01 record), all the SMR01 records in a given 'continuous inpatient stay' will be included in the length of stay.

Bed days. Occupied bed days are assigned to the year in which admission takes place. This is thus an approximation of beds occupied in each year.

Presentation and data availability.

The analyses in this section are presented entirely in graphical form. The underlying data is available from the authors at national and Health Board level.

Trends in emergency admission and bed days.

The scale of the pressure on the NHS generated by increasing emergency inpatient admissions among older people can be seen in Figure 2. This shows the acute bed days occupied by patients admitted as an emergency from 1981 to 2001. The data is presented according to four broad age bands: aged under 45, aged 45 to 64, aged 65 to 79 and aged 80 and over.

It is apparent that all of the increase in bed days occupied by patients admitted as emergencies is attributable to emergency admissions of patients aged 65 and over. Bed days occupied by patients aged 65 to 79 increased by 13% over the period. The vast bulk of the increase however was contributed by bed days occupied by patients aged 80 and over. These bed days more than doubled from 626,000 in 1981 to 1,334,000 in 2001. In 1981, patients aged 80 and over occupied 20% of 'emergency beds'. By 2001 the figure was 36%.

The number of beds occupied by patients admitted as an emergency is the product of the number of patients admitted and the length of their stay in hospital.

Thus the change in the number of beds occupied by patients admitted as an emergency can be broken down into two components:

- a) change in the number of emergency admissions
- b) change in the average length of stay.

In turn, change in the number of emergency admissions can be regarded as the product of

- a) change in age-specific rates of emergency admission and
- b) changes in the size of the age groups in the population.

Figure 3 shows rates of emergency admission per 100,000 population by age group from 1981 to 2001. The dominant pattern is that of a steady increase across all age groups.

If we take the entire period from 1981 to 2001, we can divide the age groups into three broad groupings according to the average year on year percentage increase in the rate of emergency admission which they experienced. Younger age groups, those aged under 25, experienced the lowest rates of increase at under 2%. Then a very broad middle range, from 25 to 79, experienced rates of increase from 2 to 3% per annum (the 60 to 64 age group was the only marginal exception at 3.01%). 80 to 84 year olds experienced an average year on year increase of 3.20% and the emergency admission rate of those aged 85 and over increased on average 3.91% year on year.

Figure 4 shows the size of the five year age bands in the population for ages 65 and over for the years 1981 to 2001. The dip followed by a rise in numbers which ripples up through the age groups across the twenty years is a distant echo of the fluctuations in the birth rate during and after the First World

War. If we ignore this historical perturbation, numbers in the 65 to 69 and 70 to 74 year old groups have been quite steady over the period. There was a small increase in the numbers in the age group 75 to 79. Numbers in the 80 to 84 age group increased in the first half of the period but not in the second – although this may itself be the effect of the First World War 'echo'. By far the most sustained increase occurred among those aged 85 and over. In 1981, there were 48,670 people in Scotland aged 85 and over. In 2001 the figure was 88,794 representing an increase of 82%.

Figure 5 shows the actual number of emergency admissions over the period 1981 to 2001 for the older age groups. The rapid increase in the size of the population aged 85 and over combined with the high growth in rates of admission in this age group to produce a particularly rapid increase in numbers of admissions – from 9,801 in 1981 to 38,217 in 2001 – almost a fourfold increase.

Figure 6 shows the trend in length of stay after emergency admission by age group. Until the early 1990s all age groups showed a steady decline in the average length of stay. However in 1993, the downward trend in length of stay came to an end for patients aged 85 and over. Thereafter the decline has tended towards a levelling off for other groups of patients aged over 70.

At the beginning of this sub-section we identified the increase in bed days occupied by emergency inpatients aged 80 and over as the most significant element of sustained pressure on the acute sector of the NHS. This increase has been driven by all three components discussed in this section: demographic change, rates of emergency admission and length of stay. Numbers in the population aged 85 and over have increased very rapidly. There has been a sustained increase in the rate of emergency admission particularly among those aged 80 and over. Finally, the last ten years have seen a cessation in the long-term decline in length of stay among the older age groups.

The implications of these trends have been spelled out in more detail in an earlier working paper (Kendrick, 2001). If the trends in age-specific admission rates were to continue for another twenty years, even if it is assumed that the trend towards a reduction in length of stay for older patients can be resumed, then by 2021 patients aged 80 and over will be occupying over half of all acute beds occupied by emergency patients.

From admissions to patients: multiple emergency admissions among older people.

An earlier analysis of trends in emergency admission in Scotland showed that 'the greater the number of emergency admissions per patient, the faster the increase in the number of patients' (Kendrick, 1996). This pattern was confirmed by the trends published in the CRAG Clinical Outcome Indicators Report of 2000 (Scottish Executive Health Department, 2000).

These analyses looked at the number of times a patient was admitted as an emergency in a five year period. More recently attention has focused on multiple emergency admissions within the shorter time span of a single year.

Multiple emergency admissions within a five-year period

Patients. Figure 7 shows the trend in the proportion of the population admitted at least four times as an emergency admission in successive five-year periods by broad age groups. This is the definition of multiple emergency admissions adopted in the CRAG Clinical Outcome Indicators Report of 2000 (Scottish Executive Health Department, 2000). These patterns were highlighted as a cause for concern in the Report of the CMO's Expert Group on the Healthcare of Older People (Chief Medical Officer, 2002).

All age groups have experienced an increase in multiple emergency admissions. However the increase has been relatively faster among older people. In the period 1981 to 1985, 1.99% of the population aged 65 to 79 experienced four or more emergency admissions. By 1996 to 2000 this had increased to 5.72% - almost a trebling in the rate. Among the population aged 80 and over, 3.36% experienced four or more emergency admissions in the period 1981 to 1985. By 1996 to 2000, this had increased to 11.80% of the population – an increase of over three and half times.

It must of course be remembered that the size of the population group aged 80 and over has also been increasing steadily over the period. Thus the absolute number of patients aged 80 and over admitted as an emergency four or more times in a five year period has been increasing even more rapidly: from 4,560 in the period 1981 to 1985 to 20,528 in the period 1996 to 2000.

Bed days. We have already seen (Figure 2) that the bulk of the increase in beds occupied by emergency patients over the last 20 years consisted of patients aged 80 years and over.

Figure 8 presents a further dimension of the analysis of bed days occupied by emergency patients aged 80 and over. The graph shows the trend in the the number of bed days occupied by these patients according to the number of times they were admitted as an emergency in a five year period.

The first column for each of the four five-year periods shows bed days occupied by patients aged 80 and over who experienced a single emergency admission in the five year period. Beds occupied by these patients increased

slightly between the periods 1981 to 1985 and 1986 to 1990 and then declined significantly thereafter. Beds occupied by patients admitted twice or three times in a five-year period increased steadily.

The final column shows bed days occupied by patients admitted four or more times in a five year period. These have shown a marked increase throughout the period from just over 500,000 bed days to 1,850,000 bed days.

In other words, a high proportion – around two thirds – of the entire increase in beds occupied by emergency patients in the last twenty years can be accounted for by a relatively small group – around 20,000 – of patients aged 80 and over who experienced four or more emergency admissions in a five year period.

Multiple emergency admissions within a one year period.

Four or more emergency admissions in a five year period constitutes a rather broad definition of what are sometimes called 'revolving door' patients. It has been argued, for example, that four admissions in a five year period might be a reasonable price to pay for maintaining an older person in their own home or in residential accommodation as opposed to being confined to a long stay ward. In addition, a measure which tallies emergency admissions over a period as long as five years is, by its nature, relatively insensitive to short term changes in trend.

For these reasons, multiple emergency admissions are defined in this section in terms of the shorter time period of a single year.

As was the case for the definition in terms of the number of admission in five years, the number of patients with multiple emergency admissions in a single year has increased much more rapidly than the number of patients with only one admission in a year.

In the 60 to 64 age group, for example, the proportion of the population experiencing one emergency admission in a single year increased from 5.71% to 7.37% - an increase of around 29%. The proportion experiencing two emergency admissions doubled from 0.81% to 1.66%. Finally the proportion experiencing three or more emergency admissions increased almost four-fold from 0.26% to 0.97%.

Among the oldest age group, those aged 85 and over, the proportion experiencing three or more emergency admissions in a single year increased more than five-fold from 0.5% to 2.70% between 1981 and 2001.

Figure 9 shows the trend in the proportion of the population admitted as an emergency three or more times in a year by age for each year between 1981 and 2001.

Because of the increase in the population of the oldest age groups, the numbers of patients admitted three or more times in a single year have increased even more rapidly. Figure 10 shows the number of patients admitted three or more times as an emergency in a given year for the older age groups.

In 1981, 241 patients aged 85 and over were admitted to hospital as an emergency 3 or more times. In the year 2001 this number had increased to 2,313 – almost a ten fold increase in 20 years.

Bed days. Figure 11 shows, from 1981 to 2001, the bed days occupied by emergency patients aged over 80 subdivided according to the number of times they were admitted in each year. The total area (number of bed days) in this graph corresponds to the top sector (aged over 80) in Figure 2. Figure 2 showed that it is patients aged 80 and over who have accounted for most of the increase in bed days occupied by emergency patients over the last twenty years. Within this age group, the increase in bed days occupied by patients with one emergency admission seems to have levelled off since 1987. Subsequently the increase in bed days has been almost entirely contributed by patients with two emergency admissions or three or more emergency admissions.

Over the whole period, bed days occupied by patients aged 80 and over with two emergency admissions have increased from 157,095 in 1981 to 373,262 in 1981. There were 9637 such patients in 2001 each using an average of 39 bed days.

Patients aged 80 and over with three or more emergency admissions occupied 50,104 bed days in 1981 and 240,125 in 2001. There were 4,991 such patients in 2001 each occupying an average of 53 bed days.

Diagnoses. The question has been raised as to whether this group of older patients with multiple emergency admissions consists disproportionately of particular clinical or diagnostic groupings. Figure 12 subdivides the group of patients aged 80 and over admitted as an emergency in 2001 according to whether they were admitted once, twice or three or more times within the year. For each of these groups the graph shows the proportional make up of admissions in terms of broad groups of diagnoses. The groupings are defined in Box 1. What is perhaps surprising is that the proportional diagnostic make-up of the three groups shows relatively little variation. The main exceptions are that patients aged over 80 with multiple admissions are less likely to be admitted with 'other circulatory conditions' (mainly strokes), slightly less likely to be admitted with injuries and somewhat more likely to be assigned a diagnostic code of 'signs and symptoms'. However these differences are relatively small.

In the 65 to 79 age group (Figure 13) there is slightly more variation according to number of emergency admissions. In particular patients with three or more emergency admissions in the year are twice as likely to have been admitted with a respiratory condition. This may be particularly significant in that the

surges in emergency admissions which trigger winter bed crises consist primarily of older patients with respiratory conditions (Kendrick et al., 1997; Damiani and Dixon, 2001).

Box 1 Broad diagnostic groupings

	Diagnosis	ICD 9 codes	ICD10 code
1	Cancer	140 to 239	C00 to C97 D00 to D48
2	Heart disease	390 to 429	I00 to I52
3	Other disorders of the circulatory system e.g. cerebrovascular disease (inc stroke), arterial disease, phlebitis, diseases of veins etc.	430 to 459	I60 to I99
4	Diseases of the respiratory system e.g. acute upper respiratory disease, flu, pneumonia bronchitis, COPD, asthma	460 to 519	J00 to J99
5	Diseases of the digestive and urinary system	520 to 599	K00 to K93 N00 to N39
6	Mental disorders and nervous system diseases Includes dementia, other psychiatric disorders, Alzheimer's disease, Parkinson's etc.	290 to 319 320 to 389	F00 to F99 G00 to G99 H00 to H95
7	Symptoms, signs and ill-defined conditions Includes cardiac murmur, cough, chest pain, abdominal pain, difficulty walking, dizziness, confusion, malaise and fatigue, syncope and collapse etc.	780 to 799	R00 to R99
8	Injuries, etc	800 to 959 980 to 999	S00 to S99 T00 to T35 T51 to T98
9	Poisoning	960 to 979	T36 to T50
10	Other		
	Infectious and parasitic diseases	000 to 139	A00 to A99 B00 to B99
	Endocrine, nutritional and metabolic disorders	240 to 279	E00 to E90
	Diseases of blood and blood forming organs	280 to 289	D50 to D89
	Diseases of reproductive system	600 to 676	N49 to N99 O00 to O99
	Diseases of skin and subcutaneous tissue	680 to 709	L00 to L99
	Musculoskeletal system and connective tissue	710 to 739	M00 to M99
	Congenital anomalies and perinatal conditions	740 to 799	P00 to P96 Q00 to Q99
	External causes of morbidity		V01 to Y98
	Factors influencing health status		Z00 to Z99

However despite these exceptions, the general point holds that older patients admitted three or more times in a year are experiencing broadly the same diagnoses as those admitted once or twice. Multiple admissions are not a by-product of any specific trends in morbidity. Something much more general is going on.

This is confirmed by Figure 14 which shows the trend in these broad groups of diagnoses for patients aged 80 and over experiencing 3 or more emergency admissions within the year. The pattern of increase is shared across all groups of diagnoses of significance to older patients. However, there is a particularly rapid increase in diagnoses coming under the category 'symptoms and signs'. In these cases, patients have been discharged without having been assigned a single specific diagnosis. This category will include a range of conditions such as collapse or reduced mobility which are often the consequence of minor illness on the background of comorbid disease and functional impairment which causes a crisis in terms of the older persons health and social care status.

Trends: summary.

This section has progressively identified the groups of patients which have made the biggest contribution to the continuing rise in the number of beds occupied by patients admitted as an emergency.

First it has been shown that patient aged 80 and over have accounted for the bulk of the increase in bed days occupied by emergency patients. The increase in beds occupied by this age group has been the resultant of three main factors: growth in the size of the population group, a rise in the rate of emergency admission per head of population and a more recent cessation in the decline in length of stay for older age groups.

Trends were then examined in terms of patterns of multiple admissions. Most of the increase in bed days occupied by patients aged 80 and over can be attributed to those patients who were admitted as an emergency four or more times in a five year period. In the period 1996-2000, there were around 20,000 of these patients.

Finally trends were examined in terms of the number of times patients were admitted within a single year. Again, patients admitted several times made a disproportionate contribution to the overall increase in the use of inpatient beds. In 2001 there were just under 5,000 patients aged 80 and over admitted three or more times in a single year. In terms of diagnoses, the group with the most rapidly increasing numbers were classified under 'symptoms and signs'.

Section II. Towards an explanation.

‘How often have I said to you that when you have eliminated the impossible, whatever remains, *however improbable*, must be the truth?’
Sherlock Holmes *The Sign of Four* (Conan Doyle, 1973)

The framework of explanation.

The preceding analysis has taken us a long way towards identifying the ‘who’ of increasing emergency inpatient pressures on the NHS. In this section we attempt to answer the ‘why’: why has this sustained rise in emergency admissions, and especially multiple emergency admissions, among older people taken place?

In order to work out what best to do about these trends – and indeed to help assess the extent to which they represent an undesirable phenomenon – we need to understand why they have happened. In particular we need to identify points of leverage in the system where intervention could produce maximum improvement.

The issue of rising emergency admissions in general in the United Kingdom and in Scotland has been the subject of discussion for at least the last ten years (Blatchford et al., 1999; Capewell, 1996; Donaghy et al. 1998; Kendrick, 1996; Morgan et al. 1999; Scottish Executive Health Department, 2000; Hanlon et al., 2000)

The balance of factors underlying the rise in numbers of older people with *multiple* emergency admissions may be different to that underlying the *general* rise in emergency admissions among older people. Strictly speaking we should perhaps carry out two separate explanatory exercises.

However there is likely to be sufficient overlap to permit us to work on an explanation which would encompass the two. On the one hand this will allow us to relate the discussion to the existing literature on rising emergency admissions in general. On the other hand we should try to point out when specific factors are particularly relevant multiple admissions among older people.

It has been a commonplace of the discussion to date that any explanation is likely to be complex and multi-factorial. This cannot be denied. However rather than surrender to the complexity implied by such a formulation we must make every effort to make our attempt at explanation as structured and systematic as possible.

The first means to this end is to follow Sherlock Holmes and adopt a logic of elimination. If we can establish with reasonable confidence the contribution of certain factors, such as demography or change in the health of the

population, to an overall explanation then the rest of the explanation must consist of other factors.

As was outlined in the introductory section, the second means to a systematic explanation is to adopt a whole system approach. Emergency inpatient admission is one component of the whole system of health and social care. Explaining why emergency admissions among older people have risen so consistently can be defined as understanding how one particular set of causal pathways within the whole system actually operates.

The potential factors underlying the rise in emergency admissions and multiple emergency admissions among older people can be divided into four broad groups.

The first two relate to the level of ill-health or morbidity in the population. First is the role of demographic change. To what extent is the increase in emergency admissions among older people a reflection of the fact that the population is getting older?

The second factor is change in age-specific levels of morbidity in the population. To what extent is the rise in emergency admissions among older people a reflection of changing levels of health in the older age groups?

The third and fourth sets of factors encompass everything else. Almost by definition this 'everything else' must be overwhelmingly a social phenomenon. It must consist of changes in how the whole system of health and social care treats a population of a given age and a given level of health.

The third section of the explanation thus examines the impact of patterns of social change as they have influenced the supply of informal care for older people. Finally the fourth set of factors concerns the role of the formal care system itself.

A. Demographic change.

It is often maintained that pressures on the NHS in general and rising numbers of emergency admissions in particular are a reflection of an ageing population.

The trends in the sizes of the different age groups in the older population were discussed in the previous section (see Figure 4). The main points were that there had been relatively little change in the numbers in the age groups between 65 and 79 in the last twenty years and something of an increase in numbers in age group 80 to 84 in the 1980s. The outstanding trend however was the sustained increase in numbers of the 'oldest old' – those aged 85 and over – throughout the period.

In this section, the aim is to establish the proportion of the increase in emergency admissions which can be attributed to changes in the size of the relevant age groups. Because, in Scotland, we have excellent trend data on rates of admission per head of population, it is at first sight relatively straightforward to calculate the proportion of any given change in admission numbers which is attributable to population change.

Table 1.

**Emergency admissions: population component of change
1981 to 2001, 1996 to 2001**

1981 to 2001

	1981 admissions	2001 admissions	Change 1981-2001	Population component	As percentage
All ages	276486	467599	191113	5186	2.7%
Aged 65 and over	87055	184891	97836	13169	13.5%
Aged 80 and over	23811	71664	47853	12086	25.3%

1996 to 2001

	1996 admissions	2001 admissions	Change 1996-2001	Population component	As percentage
All ages	429913	467599	37686	3508	9.3%
Aged 65 and over	163554	184891	21337	6277	29.4%
Aged 80 and over	62232	71664	9432	3287	34.8%

The first step is to calculate the 'population (or demographic) component of change'. This is the change in the number of emergency admissions between Time A and Time B which would have been expected if there had been no change in the age-specific rates of admission. In other words what would have happened if the only change had been change in the size of the relevant age groups in the population.

The expected number of admissions at Time B is calculated by applying the age specific emergency admission rates at Time A to the numbers in the relevant population age groups at time B. We can follow the logic by carrying

out the calculations for the demographic component of change for the total population between 1981 and 2001.

Between 1981 and 2001, the actual number of emergency admissions in Scotland increased by 191,113 from 276,486 to 467,599. If we apply the 1981 age-specific admission rates to the 2001 population, we calculate that the 'expected' number of emergency admissions in 2001 would be 281,672. This represents an increase of 5,186 over the 1981 total. Thus if age-specific emergency admission rates had stayed the same over the twenty year period and the only thing which had changed had been the size of the age groups in the population we would have had an increase of only 5,186 emergency admissions instead of the actual increase of 191,113. This demographic component of change (5,186) represents only 2.7% of the actual change in numbers (191,113). Thus it can accurately be stated that demographic change accounted for less than 3% of the overall increase in emergency admissions between 1981 and 2001.

However the size of the demographic component of change will vary depending on the period of time over which it is calculated and the age groups for which it is calculated. Variations over time in the magnitude of the differentials in admission rates between age groups and in the size of the age groups themselves will affect the size of the demographic component.

This can be seen in Table 1. The first row for all ages between 1981 and 2001 presents the result we have just calculated. The second row covers the same period but the calculations are restricted to the population aged 65 and over. For these older age groups the demographic component of change represents 13.5% of the total increase in admissions of 97,836. Restricting the analysis to the population aged 80 and over pushes the demographic component to 25.3% of the increase in emergency admissions between 1981 and 2001.

This variability in the size of the demographic component for different age groups and time periods is a reflection of the fact that older age groups, and in particular the age groups over 80, grew faster than the rest of the population. In particular, when calculating the demographic component for the total population, the 'positive demographic component' for older people is likely to have been counteracted by a 'negative demographic effect' related to children. The fall in the birth rate over the period will have acted to reduce the number of children (especially younger children) who tend to experience relatively high emergency admission rates – thus tending to lower the expected number of admissions and reduce the size of the demographic component.

The second half of the table shows the size of the population component for the same population groupings but over the more recent time period of 1996 to 2001. For the total population, the demographic component of change accounted for 9.3% of the total increase of 37,686 in emergency admissions. For the population aged over 65, the demographic component accounted for

29.4% of the increase and for those aged 80 and over the demographic component accounted for 34.8% of the increase.

The main reason why these demographic components are larger than the equivalents for the period 1981 to 2001 is that the differentials in age-specific admission rates widened between 1981 and 1996. Any changes in age-specific emergency admission rates between 1981 and 1996 (which by definition would not be part of the demographic component of change for 1981 to 1996) become 'built-in' to the demographic component of change for 1996 to 2001.

Thus the assessment of the effect of demographic change depends upon the period considered and the age groups included. However the overall message of this section is that the bulk of the increase in emergency admissions over the last twenty years is not to be explained by the ageing of the population. If we were to regard the health service as a genuine whole system with easy transferability of resources between age groups then we would look at the demographic component of change applied across the whole population. From this perspective population change has accounted for less than 10% of the increase in emergency admission even in the most recent years. If we restrict our gaze to the older age groups, demographic change has accounted for an order of magnitude of 10-35% of the increase in emergency admissions among older people over the last twenty years.

Multiple emergency admissions.

Simple application of similar techniques to calculate the population component of change in the number of multiple emergency admissions among older people would give a false impression for two reasons. Rates of multiple emergency admissions were so low in 1981, even among the very old, that the demographic component would inevitably be quite small. Conversely to the extent that we accept the argument that increases in multiple admission among older people have been the result of complex of social and organisational factors, to that extent it would be misleading to incorporate the results of such processes into a demographic component of change for a later period such as 1996 to 2001. Perhaps the best formulation is to regard the ageing of the population as acting to amplify the effects of the upward trends in age specific rates of multiple emergency admissions.

B. Morbidity: the health of older people.

Are emergency admissions and multiple emergency admissions among older people increasing because, age for age, older people have been getting less healthy over the years? To what extent do they reflect increasing levels of morbidity among older people?

Perhaps the most surprising aspect of this issue is the lack of systematic longitudinal information on change in the level of population morbidity over time. However, the balance of what evidence there is seems to be that within age groups, the health of older people is either remaining much the same or is improving.

Freedman et al carried out a systematic review of studies examining recent trends in disability and functioning among older adults in the United States (Freedman et al., 2002). Their most general conclusion was that 'for older US adults the prevalence of any disability declined significantly during the 1990s,'

In a United Kingdom context, Bebbington and Comas-Herrera present data from the General Household Survey based on consistent questions asked over the last twenty years or more (Bebbington and Comas-Herrera, 2000).

Table 2.

Per cent requiring help with Activities of Daily Living. General Household Survey. England and Wales.

Age	Men			Women		
	75 to 79	80 to 84	85+	75 to 79	80 to 84	85+
Year						
1980	8.4	17.9	30.9	9.9	13.2	35.6
1985	11.4	13.1	22.7	11.0	26.0	51.0
1994	5.5	12.5	17.5	9.5	14.8	24.6
1996	7.8	7.2	15.7	7.9	20.5	26.7
1998	5.6	11.3	11.6	10.6	12.6	17.7

(Source: Bebbington and Comas-Herrera, 2000)

First they present responses to the standard question on Limiting Long-standing Illness

- 1. Do you have any long-standing illness or infirmity? By long-standing I mean anything that has troubled you over a period of time or that is likely to affect you over a period of time?*
- 2. Does this illness or disability limit your activities in any way?*

Between 1976 and 1998 there was no discernible change in the proportion of men or women aged 65 and over giving a positive response to this question (and it should be remembered that within this broad group there has been a sizeable relative shift towards older age groups).

The authors also present data on trends in the Activities of Daily Living (ADL) item in the General Household Survey. They present the proportion of people unable to do without help with one or more of the following activities: washing face and hands; bathing, showering, washing all over; getting in and out of bed; feeding; getting to the toilet (Table 2). Although there are considerable fluctuations from survey to survey the general trend in disability among older people according to this definition is down and this is particularly marked among those aged 85 and over.

Stearns and Butterworth (2001) carried out a comparison of levels of disability among older people based a comparison of the 1985 OPCS Survey of Disability among Adults in Private Households and the 1996/7 Disability Follow-up to the Family Resources Survey. Their conclusion was that

‘Overall, disabled elderly people (in all living conditions combined) decreased as a proportion of the population between 1985 and 1996/7. The best estimate of the reduction overall is of 0.2 or 0.3 percentage points per year in the UK, though evidence indicates that the rate of reduction may have been slightly greater in Scotland.’ (Stearns and Butterworth, 2001)

Finally, we can turn to a Scottish study which was explicitly aimed at assessing the impact of change in morbidity on the rising trend of emergency admissions in Scotland.

Hanlon et al (2000) report on a detailed statistical modelling exercise based on 23 year follow-up of the hospitalisation experience of a study population recruited in Renfrew and Paisley in the mid-1970s.

The study was able to relate various directly measured aspects of physiological morbidity such as BMI, blood sugar, cholesterol, diastolic blood pressure and 'relative forced expiratory volume' (a measure of impaired pulmonary function) to emergency admission. These physiological factors, along with others such as smoking and deprivation, were significantly related to the likelihood of emergency admission. However changes in such 'personal risk factors' did not make any significant contribution to the rise in emergency admission.

The authors go on to add that

' Similarly ... the rising rates of admission could not be explained in terms of a proportionate rise in any diagnostic code or specialist activity. Indeed, the general stability of frequency of reasons for admission ... supports the argument that the rise in admissions within Scotland cannot be put down to any genuine increase in morbidity or a dominant growth in any single diagnostic area.' (Hanlon et al. 2000).

This conclusion conforms with the fact that the rise in emergency admissions among older people has occurred across most of the major groups of diagnoses relevant to older patients (Kendrick, 1996; Scottish Executive 2000). Similarly, as shown in Figure 12, the rapidly expanding group of patients aged 80 and over with multiple emergency admissions showed no distinctive diagnostic pattern compared with those experiencing singleton admissions.

In summary, none of the direct evidence points to an age-for-age rise in general levels of morbidity in the older population. This makes it unlikely that a significant proportion of the increase in emergency admissions is to be explained by such a rise. The study by Hanlon et al. was specifically aimed at examining this hypothesis and came to the definitive conclusion that changes in baseline risk factors explain little of the trend in rising emergency admissions.

Before leaving this issue behind we must deal with a shift in the pattern of care which, while not affecting the level of morbidity in the population, may have resulted in a greater number of relatively frail elderly people living in the community and hence having a greater likelihood of being admitted as an emergency inpatient. This change has been the closure of NHS long stay beds over the last decade or more and the shift in the balance from institutional to domiciliary community care.

Morbidity in the community: the impact of the decline in long stay beds.

The 1990s saw a decline in the number of NHS Geriatric Long Stay beds from 9,132 in 1990 to 4,492 in 2000. In addition the number of Psychiatry of Old Age beds declined from 5,914 to 4,194. It would be expected that as the type of frail elderly patients cared for in such long-stay facilities are increasingly cared for elsewhere, they would make a contribution to the rise in emergency admissions among older people. It has also been suggested that rather than a shift from care in long stay beds to true care in the community i.e. in the older person's own home, the shift has rather been from long stay beds to other forms of long term care.

Figure 15 shows trends in the locus of long term and residential care in the 1990s.

Superimposed on the decline in NHS Geriatric Long Stay and Psychiatry of Old Age beds is a more gradual decline in Local Authority Residential Home places. However until the late 1990s the effects of both of these trends was more than balanced by a rapid rise in the provision of private nursing home places. In the most recent years the number of places in private nursing homes has stabilised producing an overall decline in the provision of long term care.

In broad terms, it is true to say that the major shift over the last ten years has been from NHS long stay facilities into residential care with a more recent shift out of long-term care.

The level of emergency admissions recorded as being experienced by someone resident in an NHS Geriatric Long Stay bed should in principle be very low. This is because anyone admitted to an acute specialty from a long stay bed should in principle be coded as a transfer of care within the NHS rather than as an emergency admission. Admission to acute care from a Psychiatry of Old Age bed may, in practice, be coded as an emergency admission or a transfer.

The effect of the closure of long stay beds on the level of recorded emergency admissions is likely to have been mediated by one factor in particular. Is the probability of emergency admission among residents of private nursing homes likely to be close to the (very low) level of emergency admission recorded for patients in long stay beds or is it likely to be closer to the probability of emergency admission for older people in their own homes? We have no direct evidence on this. However, the consensus would appear to be that residence in a private nursing home offers relatively little protection against emergency admission to acute care. So after all, it would appear to be likely that the decline in the number of long stay beds has had some effect on emergency admission among older people.

To help keep this in perspective it must be remembered that in the 1980s the number of NHS Geriatric Long Stay beds was still increasing – from 7,944 in 1980 to 9,132 in 1990. As can be seen in Figure 3 emergency admissions among older people were increasing just as quickly in this period as they have been in the period when the number of long stay beds has been falling. The decline in long stay beds may well have contributed to the rise in emergency admissions. But it is likely to be one factor among many.

Social and organisational factors: the whole system.

Demographic change seems to have accounted for anything up to a third of the increase (depending upon age group and period) in emergency admissions among older people. It seems unlikely that rising general levels of morbidity among the the older population have played a significant role – although it has to be recognised as discussed in the previous section that the closure of NHS long stay beds may have had some impact.

why emergency admissions and multiple admissions among older people have been increasing so steadily must be found among the complex of social and organisational factors which influence the decisions which determine whether an older person is admitted to hospital.

In other words, explanation may lie in understanding how broad patterns of social change have interacted with the whole system of health and social care to affect how the whole system deals with individual patients.

Figure 16 is a simplified representation of those elements of the whole system of health and social care which form a continuum of care which may or may not result in an emergency inpatient admission.

The general thesis to be outlined here is that patterns of social change and organisational imperatives within the health and social care system have served to pass the care of older patients along the continuum – from informal care to formal non-acute care, from non-acute care to acute care. The system contains powerful multipliers so that, for example, it may only take marginal increases in demands on the primary care system to produce a sizeable impact on emergency admissions to the secondary sector.

C. Social change and informal care.

Informal care – the care provided outwith the formal sector by family, friends and neighbours – can be regarded as the first port of call when care in a potential crisis is needed. As such it lies at one end of the continuum of care sketched in Figure 16.

The availability of informal care – for example whether an older person lives alone, the extent to which family members are available and willing to provide care - can make a crucial difference in determining whether an older person is admitted to hospital. (Donaghy et al., 1998)

In understanding the social factors underlying the rise in emergency admissions however the contribution of informal care must be seen as being much wider than simple 'availability in a crisis'. Informal care probably makes its greatest contribution by promoting long-term health and independence among older people – for example by preventing social isolation as well as contributing to more concrete aspects of care.

Informal care and its relationship to broad patterns of social change over recent decades is a complex topic. Direct empirical evidence is scarce. How can we assess the extent to which broad patterns of social change have affected the supply of informal care?

Before attempting such an assessment it is perhaps worth making some comments relating to the conventional wisdom on informal care and the nature of the academic research base.

Firstly, most research has related primarily to the supply of informal care relevant to older people with *long-term* care needs rather than to the kinds of care most relevant to emergency admission. The latter could range from low levels of 'watching out for someone' to the ability to help someone out through an acute crisis. This often leaves us in the position of having to 'read across' implications for 'informal emergency care' from research addressed to the issue of the supply of informal long-term care.

Among the general public and non-academic commentators, there is a general and deeply held sense that the last fifty years have seen a steady decline in the extent to which the extended family and community networks have provided informal care for older people. This appears in conversation with friends, with health and social care professionals and in the press. The recent disaster in France when thousands of elderly people died as a result of extreme high temperature has led to a resurfacing of many of these concerns. As Torcuil Crichton pointed out in the Sunday Herald '...it is in France that the sense of crisis in society is deepest. Britain has all but admitted that the extended family unit and community ties have broken down but the French clung to the notion that they looked out for each other.' (Sunday Herald, 31st August 2003)

Are these beliefs supported by empirical evidence? With a few exceptions, academic research is remarkably unforthcoming. The kind of large-scale, longitudinal research required to nail down the issue just has not been done. One is reminded of the situation reported by Putnam when he was in the early stages of preparing his book *Bowling Alone*, a work which confirmed a massive and long-term decline in levels of social capital in the United States over the last forty years. Most people outside academia immediately tuned into his ideas and commented how much they chimed with their own experience. Academic colleagues were much more sceptical (Putnam, 2000).

We are left in the position of having to do as balanced an assessment as we can of the extent to which patterns of social change have affected the ability and willingness of society to provide informal care.

In this section we will present three main forms of evidence relating to the issue. First we will present evidence on relatively concrete aspects of social change which are likely to have affected the capacity of society to provide informal care for older people. Then we will take a look at more 'intangible' elements of long-term social change which may have had a bearing on the availability of informal care for older people. Thirdly we will present what

direct evidence there is on changing levels of informal care for older people. Finally, we will use the discussion of informal care as context for a discussion of the role of 'expectations' in the admission of older people to hospital.

1. Structural factors: trends affecting the capacity of society to provide informal care.

Many of the most important determinants of the ability of society to provide informal care for the older population relate simply to the availability of potential carers. How many potential carers are available, are they in the right place to provide informal care and do they have the time to do it? Some of the most significant social changes of the last fifty years have profoundly affected these determinants of the capacity of society to provide informal care.

a. Living arrangements.

Who do older people live with? Who is available to provide the kind of continuous care and surveillance which can only be provided by someone living in the same household? The type of household in which an older person lives is perhaps the most direct determinant of the informal care available to that person. Recent decades have seen major shifts in the household circumstances of older people.

Table 3. Proportion of older people living in 'complex' households. United Kingdom. 1971 to 1991.

		Age Group		
Men		65 to 74	75 to 84	85 and over
	1971	11%	15%	27%
	1981	8%	11%	20%
	1991	5%	6%	10%
Women		65 to 74	75 to 84	85 and over
	1971	16%	24%	31%
	1981	10%	16%	25%
	1991	7%	9%	13%

(Source: Grundy, 1996)

Two patterns of change have been particularly important. The first is the long-term decline in the proportion of older people who live in complex or multi-generational households. The second is the rise in the numbers and proportions of older people who live alone.

In recent years we have been seeing the final stages of a dwindling in the proportion of older people who live in 'complex' households. In charting these trends, Grundy defines a complex household as one which includes friends or relatives other than a spouse or which contains more than one family.

Table 4. Population aged 75 and over: numbers living alone.

Scotland.			
1981, 1991 and 2001			
		Year	
Aged 75 to 84		1991	2001
Population		259086	270512
Living alone		119337	121973
Per cent living alone		46.1%	45.1%
Aged 85 and over		Year	
		1991	2001
Population		70268	88355
Living alone		30263	44048
Per cent living alone		43.1%	49.9%
All aged 75 and over	1981	Year	
		1991	2001
Population	280313	329354	358867
Living alone	100792	149600	166021
Per cent living alone	36.0%	45.4%	46.3%

Sources:

Living alone: 1981 Census of Scotland. Housing and Household report. Table 30.
 1991 Census of Scotland. Report for Scotland Part 1. Table 47.
 2001 Census of Scotland. Table S248.

Population: 1981, 1991 revised mid-year population estimates. GRO Scotland.
 2001 Census of Scotland Population Report.

Table 3 shows the proportion of older people living in complex households from 1971 to 1991.

Across all age groups of older people there has been a marked decline in the proportion living in complex households so that by 1991, even among those

aged 85 and over the proportion was down to 10% for men and 13% for women.

In particular elderly parents are increasingly unlikely to live in an intergenerational household with their children. Grundy points out that

‘In 1962 ... 42 per cent of elderly people lived with a child compared with 14 per cent in 1986.’ (Grundy 1995)

In the context of the general shift away from complex households, the simplest form of household is when someone lives on their own. Elderly people living on their own is also the circumstance in which the provision of informal care becomes most problematic.

Table 4 gives data on the number and percentage of people aged 75 and over living alone from successive Scottish Censuses. For 1981 data was available only for the age group as a whole. Between 1981 and 1991 the proportion of the population aged 75 and over who lived on their own increased from 36.0% to 45.4%. The ten years to 2001 saw a further marginal increase to 46.3%. These trends broadly coincide with figures for the United Kingdom based on the General Household Survey. These show the percentage of those aged 75 and over who live alone to have increased from 40% in 1973 to 47% in 1983 and then to 50% in 1991. Thereafter the proportion has been relatively stable at around 50% (National Statistics, 2001).

However in the years between 1991 and 2001, according to the Census of Scotland there has been a divergence in trend between those aged 75 to 84 and those aged 85 and over. The proportion of the 75 to 84 age group who live alone declined from 46.1% to 45.1%. Applied to population numbers which showed a moderate increase this produced a small increase in the numbers living alone.

Among those aged 85 and over however, the proportion living on their own increased from 43.1% to 49.9%. Combined with rapidly increasing numbers in the population in the age group this produced a dramatic increase in the number who live alone. The number of people aged 85 and over who live alone increased in Scotland in the ten years from 1991 to 2001 from 30,263 to 44,048: an increase of 46%.

b. The supply of potential family carers.

It has been part of the conventional wisdom that major drivers in the decline of informal care for older people have been smaller family sizes – so that fewer children are available to provide care for elderly parents – and greater geographical mobility – so that what children there are will tend to live further away from their parents. It may well be that while playing a significant role in previous decades, in the last twenty years the impact of such changes in the potential supply of family care has diminished.

David Eversley, in a highly perceptive paper published in 1983 presents a very suggestive broader perspective on these issues. Eversley calculated, on an order of magnitude basis, the number of female near relatives a woman born in 1900 would have when she reached her late seventies. Near relatives are defined as sisters, daughters, nieces and granddaughters. He then compared this with the number alive for a woman born a generation later, in 1930, who would be approaching her late seventies in the early 2000s.

As summarised by Gordon and Donald (1991), Eversley's results were that

'.. a woman born in the early years of this century would on average have 15 female kin alive when she reached her late 70s while one born in 1930 will have half this number when she reaches the same age ..'

This dramatic decline reflects primarily the large fall in fertility which occurred in the first three decades of the twentieth century. This will have had an impact in particular on the number of sisters and the number of nieces still alive for older women in the two generations. This period is particularly relevant to our analysis in that someone born in 1901 would be 80 in 1981 while someone born in 1921 would be 80 in 2001.

To the extent that a circle of kin wider than one's children is important in the provision of informal care these shifts will be highly significant. It may be the case however that this dramatic decline in the number of 'relatives' has been even more significant in influencing the *perception* of a decline in the importance of the family. Families just don't seem to be as big as they were.

More recent research has taken a narrower focus on the number of living children available to care for older people. Murphy and Grundy (2003) have emphasised how subtle are the determinants (including trends in mortality as well as fertility) of trends in the number of living children of mothers of different ages – leading to complex and often counter-intuitive results. In particular they point out that in the coming decades

'... among those who are aged 80 ... the proportion with a surviving child (or children) is currently increasing and it is probable that around 2025, a higher proportion of elderly people are likely to have a surviving child than for any preceding generation ever born in British history ..' (Murphy and Grundy, 2003)

They do not present results relating to 80 year olds for the last two decades but their data shows, for example, that for 60 year old and 70 year old women the proportion with two or more living children has been increasing quite significantly in recent years.

The picture in Scotland is likely to be even more complicated thanks to massive levels of emigration – primarily of young adults – in the 1920s through to the 1950s.

In summary, although the twentieth century saw a significant decline in family size – particularly at the beginning and the end – this is unlikely to have translated into a significant decline in the existence and number of living children available to older people in the most recent twenty years.

A similar shift in the perception of the role of geographical residential mobility can be seen. In principle, the further away from their older parents children live, the less able will they be to provide support for them. For much of the second half of the twentieth century there was general acceptance that increased residential mobility was part of a more general process of family fragmentation. Grundy (1996) suggested that in 1962, two thirds of parents aged over 65 years had at least one child living within 10-15 minutes travel whereas by 1986 this figure had fallen to 40%. However a more recent analysis has suggested that there was no change in adult children's proximity to elderly parents in years 1986 to 1999 (Shelton and Grundy, 2000).

c. Employment patterns.

Finally of particular relevance in terms of availability of time has been the greatest single change in employment patterns in Scotland over the last fifty years: the entry of married women into the labour market.

In Scotland, in 1951, 16% of married women aged 16 to 59 were economically active (i.e. in paid employment or seeking paid employment). By 1971 this figure had risen to 46% and by 1981 to 57% (Gordon and Donald, 1991). The increase was just as marked in the age groups associated with peak caring responsibilities among women. In the 45 to 54 age group of married women, 14% were economically active in 1951, 27% in 1961, 55% in 1971 and 65% in 1981 (Kendrick, 1986). By 1991, economic activity among married women aged 45 to 54 had reached 68.4% (OPCS/GRO Scotland, 1994)

Mooney and Statham (2002) confirm the trend at a UK level based on analysis of the Labour Force Survey. They report that 62% of women aged 50-54 were working in 1979 compared with 69% in 1999. They also reported a slight shift towards women working longer hours in the same period.

However, here, as for some of the influences on the supply of informal family care which have just been discussed, there is a slowing down in the rate of change. Whereas the economic participation rate of married women aged 45 to 54 increased by a massive 28 percentage points in Scotland between 1961 to 1971, between 1981 and 1991 the increase was only 3 percentage points. The increase in married women's entry into the labour market, while still a perceptible factor, was something which largely happened before the period with which we are concerned.

2. The 'intangibles' : broad patterns of social change

So far we have been talking about factors which may have affected the capacity of society to provide informal care for older people. What can we say about the more intangible aspects of society which underlie informal care: the relationships, the social networks, the strength of the bonds of kinship, obligation and altruism which underpin one person undertaking to look after or look out for another? How have these less tangible underpinnings of informal care changed over the last twenty years?

Two bodies of thinking might be considered to be the most likely sources of insight. The first is the increasingly influential body of work concerned with social capital. Social capital is defined as consisting of precisely the kinds of networks of social relationship and patterns of social involvement which are likely to provide the underpinnings of informal care for older people. The second is the sociology of the family and the community.

The evidence is very thin on the ground. There seems to be an incompatibility between longitudinal analysis of social change and the kinds of research techniques most often used to address these types of social relationship.

Powerful indirect evidence that there may have been significant long term shifts in general levels of social involvement and social capital comes from Robert Putnam's monumental work relating to the United States (Putnam, 2000). Putnam documents a pattern of decline in the level of social involvement in a wide spectrum of communal activities: from bridge evenings to political involvement to community volunteering. In the present context there is something of an irony in the fact that Putnam makes a strong case that the level of social capital has powerful direct effects on health itself (Putnam, 2000) but has very little to say about the relationship between social capital and the level of provision of informal care.

Evidence relating to trends in social capital in the United Kingdom would seem to be less comprehensive. A systematic overview of the implications for policy of changes in levels of social capital was carried out by Aldridge et al. (2002). They suggest that we are not necessarily seeing a decline in the level of social capital but rather a transformation in its form involving the 'long-term replacement of informal and intimate forms of social capital with more abstract and generalised forms'. The authors go on to point out that 'imperfect fungibility' may be involved here:

'...new forms of social organisation may be able only partly to replace some of the functions of traditional social capital ..'

Two of the three examples given where this may be particularly true are:

'a society governed only by formal rules and characterised by weak ties between individuals may be unable to provide people with the supportive relationships they need at times of personal crisis'

and

'other forms of more intimate social capital may be more important for (e.g.) personal health' (Aldridge et al., 2002)

In other words, even if social capital is not declining but is rather shifting its nature from more intimate and informal to more abstract and general forms, this shift in itself may be particularly significant in the areas of support in a crisis and personal health – areas not too far removed from the central concerns of this paper. It is not difficult to see this discussion as supporting the idea that we are in fact seeing a weakening of the types of social relationship which would underpin informal care.

In the context of the sociology of the community and the family, the British study which perhaps sheds most light on the issue of long-term change in the social underpinnings of informal care is that by Phillipson et al. They set out to replicate three of the major post-war studies of family life in England including Willmott and Young's classic study of Bethnal Green. (Phillipson et al., 2000). Although the authors are careful to stress the complexity and variability of patterns of change in family and community life in the forty or fifty years between the original and follow-up studies, major directions of change are confirmed. There has been a general weakening in more extended family and community ties. In discussing change in Bethnal Green for example they conclude that

"... for white respondents at least, there has been a loosening of the 'strong ties' which previously attached people to kin and neighbours. In some respects, elderly people in Bethnal Green have become 'network poor'. White respondents are isolated in the sense of having insufficient strong ties on the one hand and lacking 'weak ties' on the other. For them, the traditional network ... of interdependencies between kin and neighbours has been lost without any clear replacement." (Phillipson et al. 2000)

They note a shift towards a focus on a smaller number of family ties. However a change is suggested in what was perhaps the core relationship in the original Bethnal Green study – that between mothers and daughters. Here there is a shift towards the idea of 'not interfering with each other's lives and the creation of a measure of space between daughters and their elderly parents'. Finally the authors point towards the networks of older people becoming more voluntaristic and consisting more of 'personal communities' of friends and leisure associates than kin.

Perhaps the last word should be left to Eversley's paper of twenty years ago. While lamenting the lack of longitudinal evidence and warning against any idealisation of the 'traditional community', Eversley sums up his discussion of the role of neighbourhood and voluntary services as follows:

'At the very least, however, we must assume there was a level of informal care bestowed by neighbourhoods, over and above the kinship system, whether or not it was institutionalised through friendly societies, co-

operatives, trades unions, freemasonry, or, in later decades, the British Legion, women's institutes, and sports clubs. All this also leaves out the role of the churches The mere recital of these multifarious manifestations of communal organisation leads to the conclusion that developments in the last decades may have seriously weakened the older networks.' (Eversley, 1983)

Again however we have to ask about the extent to which these changes had in fact largely worked themselves through by the early 1980s leaving relatively little scope for further decline in subsequent years.

3. Trends in caring: the empirical evidence.

Although the role of informal care has moved to centre stage in terms of policy related research over recent years, sources of information which provide direct empirical evidence on patterns of long-term change in the extent and nature of informal care are still relatively scarce.

In the United Kingdom, the main sources of data have been the British Household Panel Survey and the General Household Survey. Hirst (Hirst, 2001) basing his analysis on the British Household Panel Survey for the years 1991 to 1998 with supporting analysis from the General Household Survey, came to the following broad conclusions:

- the absolute overall level of informal caring is not increasing
- there is a relative increase in caring for spouse and parents
- there has been a decline in caring for friends, neighbours and other relatives: the less intensive forms of caring relationship

Pickard (2002) based her analysis on the General Household Survey and covered a slightly earlier period: 1985 to 1995. However her findings largely complement those of Hirst. In particular she identifies a relative shift in the locus of informal care away from friends and neighbours and towards provision by a spouse or partner. Looking at all forms and intensities of informal care, the proportion of carers who cared for a spouse increased from 7.3% to 12.3%; the proportion who were caring for a parent or parent-in-law essentially stayed the same (55.8% in 1985; 56.3% in 1995); the proportion caring for other types of relative declined slightly from 19.7% to 18.1% while the proportion caring for a friend or neighbour declined from 25.0% to 19.1%.

Pickard's particular focus is the pattern of change in caring within the household where she identifies a dramatic shift, especially in the more intensive forms of care, away from care of older people by co-resident children towards care of older people by their (usually also old) partner. This is seen in part as a reflection of the culmination of the long-term historical shift away from 'complex' multi-generational households and towards 'simpler' households where elderly people would live alone or only with a spouse. However in addition Pickard follows Grundy (1996b) in suggesting that this shift away from children caring for elderly parents within the same household

may have been accelerated by the increase in the availability of formal long-term institutional care in the 1980s.

Hirst sums up the implications of the decline in caring relationships outwith the immediate family in a way which highlights the likely impact on emergency admissions:

“While depressing potential demand for statutory services, friends and neighbours often provide emergency assistance or early warning of the onset of more serious care needs, particularly for older people with weak or no family ties. The observed decline in the provision of such informal help by women especially, may adversely affect the quality of older people’s lives as well as increase the risk that their particular needs for basic service support including preventative action do not readily come to the attention of health and social care services.” (Hirst, 2001)

Additional direct evidence on trends in the overall level of informal care comes from the United States. Spillman and Pezzin (2000) present evidence based on the 1984 and 1994 National Long Term Care Surveys. They show that the proportion of chronically disabled elderly receiving any informal care declined from 70.5% to 65.6% over the decade. This decline held true even among those with spouses or children available to provide care.

The evidence presented by Hirst and by Pickard does suggest that the overall ‘supply’ of informal care has not increased (if it has increased at all) by anything like the extent needed to satisfy the increasing ‘demand’ for informal care implied by an ageing population, growing numbers of older people living alone and, more recently, the decline in provision of long-term institutional care.

4. Demands on carers.

It has already been described how the closure of NHS long stay beds throughout the 1990s may have contributed to an increase in the numbers of frail elderly people being cared for in their own homes. This would imply an increased burden of care in the community which is likely to have fallen in the first instance on informal carers. It has been suggested that such an increase in demands on carers in recent years combined with the intensification of care suggested by Hirst - a drawing in of caring relationships to the closest family ties – may be leading to an increase in the stress of caring and an increase in the possibility of burn-out on the part of carers and the collapse of the caring relationship. Such outcomes themselves would, of course, lead to an increase in demands on the formal care services.

5. Expectations

Rising expectations are often cited as a significant factor underlying the long-term increase in emergency admissions. This case tends to be advanced as an assertion rather than on the basis of empirical evidence. The argument implies that expectations are rising not simply in terms of standards of health care in general but of emergency inpatient admission in particular. This is particularly hard to understand in the context of emergency admissions among older people. Why would older people have increasing expectations of being admitted to hospital as an emergency inpatient – a highly disruptive and even frightening event?

The 1997 study of emergency inpatient admissions in Scotland (Donaghy et al., 1998) asked patients who had been admitted as an emergency what type of treatment they would prefer if they became acutely ill again with the same or a similar condition. The responses in Highland Health Board for example among patients aged 65 and over were that 44% would prefer to be treated in a big emergency hospital while 34% would prefer a more local option (cottage hospital, local emergency centre or more GP home care).

Perhaps the hypothesised role of expectations becomes more comprehensible in the light of the discussion of trends and pressures in informal care. Caring for a frail elderly person is difficult and stressful task. As we have seen there may well have been an erosion of what traditional supports existed for informal care. The burden of care may be becoming concentrated in fewer relationships within the household. Fewer older people are being maintained in long stay NHS beds and more older people are living alone. There may well be a growing mismatch between the needs of older people and the informal care which society is willing or able to provide.

This mismatch is likely to be felt most keenly when there is a crisis in the health or well-being of the older person. Admission to acute inpatient care relieves the tension. On the one hand, the older person concerned will be seen as receiving the level of 'background' and personal care which they need. On the other hand they are seen as receiving the highest level of acute medical care needed to resolve the immediate crisis.

It has been suggested that admission to acute inpatient care is often seen as a 'marker' that everything which can be done is being done, that the older person is indeed receiving the highest possible quality of care. And of course, responsibility is being transferred at the same time that the issue is being 'medicalised'. The family are relieved of responsibility for informal care and at the same time they are confident that the best is being done.

Viewed in these terms we are not talking about rising patient expectations but rather rising expectations on the part of others involved in the care of the potential patients. We are not talking about abstract expectations of the form 'emergency admission is a good thing, we want more of it' but rather about real, specific responses to real and highly problematic situations. In this sense, rising expectations become a function of the increasing mismatch between the ability of informal care to deliver and the needs of older people.

From this perspective emergency inpatient admission is playing a role which is much more than the delivery of appropriate acute medical care. Emergency admission may often become a means of translating a set of social needs which the care system (formal and informal) is not geared or resourced to meet into a set of medical responses which the system is geared and resourced to provide.

D. The formal care system.

1. Primary care and the 'GP multiplier'.

The referral behaviour of General Practitioners may be the single most important 'node' in the complex of cause and effect relationships which has produced the rise in emergency admissions in general and multiple emergency admissions among older people in particular. In this section, we attempt to lay out some of key factors which are likely to be at work in influencing the non-elective referral behaviour of GPs.

We are particularly conscious in this section that we have not done justice to the full range of relevant recent developments in primary care – in particular the move towards multi-disciplinary and team-based practice with a greater role for the practice nurse, for example. (See for example Ritchie, 2003 for a recent overview of developments in primary care in Scotland in the last twenty years). Looking ahead, the introduction of the GP contract is likely to have significant effects in this area. The aim here is simply to try to set out the logic of the key position which GP referral behaviour is likely to play in understanding the rise in emergency admissions.

We are also conscious that this is an extremely sensitive area. There is perhaps a tendency for the primary care sector to see any attempt to explore the dynamics of referral behaviour as an attempt to assign blame. This sensitivity was captured very well in the major study of the influences on emergency admission carried out in Scotland in 1997. Of all the groups asked to participate in the study, concerns were most common among GPs

‘Of the concerns expressed by many GPs, prominent was a feeling that many secondary care based doctors had a false belief that many GP referrals were ‘inappropriate’ in that the patient could have been treated at home. GPs believed that hospital based doctors had no real understanding of the pressures GPs faced when working in the community. In drawing a contrast between examining patients at home and in hospital many GPs stated that when examining patients hospital doctors have access to diagnostic techniques and laboratories for tests. In contrast many GPs, particularly when outwith the surgery, are alone, have no guiding

diagnoses, are not specialists and have no immediate access to specialist advice. GPs may 'play it safe' by referring but, in the opinion of many GPs, hospital doctors would act in the same manner if placed in the same position in which GPs often find themselves.' (Donaghy et al., 1998)

We share these concerns. The aim of the following discussion is to understand the logic of the factors influencing the rate of emergency referral: no more.

The 'GP multiplier'.

Why then, is GP behaviour the key fulcrum in influencing the level of emergency admission? This key role is a corollary of two basic facts about the role of the General Practitioner in the NHS. Firstly, GPs are the main gatekeepers controlling access to other forms of treatment. Secondly GP contacts outnumber emergency inpatient admissions by an order of magnitude. The implications of this simple numerical circumstance are extremely powerful.

Table 5 represents an attempt to assess the numerical relationship between GP consultations and emergency inpatient admissions which are the result of a GP referral. Continuous Morbidity Recording information held at ISD gives us a good estimate of the number of GP consultations. Similarly we know the total number of emergency inpatient admissions. However we have very little information on the number of emergency admissions which are the result of a GP referral rather than the result of other access routes such as a 999 call or attendance at an Accident and Emergency Department. We have assumed, as an order of magnitude estimate, that 70% of emergency inpatient admissions are the result of a GP referral. This estimate is based on the survey of emergency admissions carried out in 1997 which showed for example that in Ayrshire and Arran Health Board 62% of emergency inpatient admissions came via GP referral whereas in Highland the figure was 81%.

Thus the second column, 'GP referred emergency admissions', is simply 70% of the figure for all emergency admissions per age group. The final column thus shows the number of GP consultations necessary to generate one emergency admission.

For all age groups up to the age of 60, there are between 50 and 75 GP consultations for every GP referred emergency inpatient admission. The number falls off among the older age groups so that there are 43 consultations per admission for the 65 to 69 year old age group, 29 for the 75 to 79 year olds and 17 for those aged 85 and over.

Even among the older age groups relatively small changes in the rate of emergency referral will produce disproportionate effects on the level of emergency admissions. For example if we take the 65 to 69 year old group, 1000 consultations will generate approximately 23 emergency admissions. One additional emergency referral per 1000 consultations would increase GP

referred emergency inpatient admissions from 23 to 24. This increase of 4% in the number of GP referred emergency admissions would in itself account for the actual annual increase in all types of emergency admission in the age group.

Thus, there exists a potentially powerful multiplier. Proportionately small changes in GP behaviour will produce a disproportionate impact on the acute sector. It would not take massive changes in GP referral behaviour to make a major contribution to the kind of increase in emergency admissions highlighted in this report.

Table 5. GP consultations and referred emergency inpatient admissions (estimated). Per 1000 population. Scotland 2001.

NB. GP referred emergency admissions estimated at 70% of total emergency admissions.

Age group.	GP consultations	GP referred emergency admissions	Consultations per admission
0 - 4	3564	72	50
5 - 9	1665	26	65
10 - 14	1497	26	57
15 - 19	2440	38	65
20 - 24	2785	41	68
25 - 29	2936	40	73
30 - 34	2879	40	72
35 - 39	2776	41	69
40 - 44	2769	42	65
45 - 49	3171	46	69
50 - 54	3359	50	67
55 - 59	3506	61	57
60 - 64	3583	78	46
65 - 69	4142	97	43
70 - 74	4498	126	36
75 - 79	4803	165	29
80 - 84	4985	213	23
85 +	4963	293	17
All ages	3079	65	47

Source for GP consultations: 65 practices providing Continuous Morbidity Recording data.

This multiplier is not a new insight (cf. Noble-Partridge and McGlennon, 1995) However we have remarkably little direct evidence on how such dynamics would actually work out in reality. It must be recognised of course that these issues would be extremely difficult to research on an empirical basis. In terms

of referral rates the research would have to identify relatively small changes over a significant period of time.

We have seen that the numerical disproportion between consultations and admissions means that relatively small changes in the referral rate will have a disproportionate impact on the rate of emergency admission.

Given that direct evidence is likely to be sparse, what can we say about the factors which are likely to have affected the referral rate?

The following might be suggested as leading candidates:

- a) Increasing demand for formal medical care
- b) Additional demands on GP time e.g. shift to doing minor surgery
- c) 'Fragmentation' of care': the loss of personal continuity of care; the shift towards larger partnerships, the development of out-of-hours services
- d) Increase in defensive medicine

In briefly outlining the possible impact of such factors it should be recognised that they are applicable in the context of all emergency referrals. However it may be argued that they apply in particular in the context of the kind of frail older patients with multiple needs who seem to have been the main drivers of the increase in emergency inpatient admissions.

a. Increased demand for urgent medical care.

How would any increase in the demand for formal medical care be likely to affect the rate of emergency referral per consultation? The earlier discussion has suggested that, in addition to any increase in demand resulting from an ageing population and increased numbers of older people living alone, changes in the pattern of informal care may be placing increasing demands on the formal care system. The point of access at which this increase in demand will hit the formal care system will tend to be the GP.

If GPs were working in what we might call a 'comfort zone' then any increase in demand for care could be satisfied by an increase in the supply of care by the primary care sector. We would see no change in the tendency to refer patients for emergency care. A 10% increase in consultations, with no change in the probability of being referred for emergency care, would imply a 10% increase in emergency referrals. However few would argue that GPs are working in their 'comfort zone'. The impression is that GPs are working at or very close to capacity. In such circumstances, what might be the likely response to any increase in demand? An increase in the tendency to refer patients for inpatient care would seem to be a rational response.

If a GP is working in a pressurised situation, then the rational response when faced with an older patient with complex needs might well be to refer that patient for in-patient admission rather than embark on what might often be a time-consuming process of arranging a package of home-based care.

The greater the pressure a GP is under, other things being equal, the greater may be the likelihood of their taking up the option of making an urgent referral to the acute sector. In addition, as we have seen, acute admission may be seen by patients and, in particular, by relatives, as a marker of 'good care', that 'everything possible is being done'.

These considerations may be particularly pertinent for the frail elderly, whose care may be seen as particularly time consuming and for whom arranging alternative forms of care may be especially problematic.

It must be emphasised that what we are doing here is simply setting out the 'logic of the situation'. The general thesis is that in a primary care system working close to capacity, faced with an increase in demand for urgent care, an increase in the rate of emergency inpatient referral would seem to be a logical outcome.

This particular effect could be termed an 'amplifier'. Relatively small increases in demand for formal health care are amplified by a primary care sector working under pressure and close to capacity into significant increases in demand for acute care.

b. Additional demands on GPs' time.

As additional demands on GPs' time and resources increase, the time and resources available for dealing with the kind of cases which may lead to emergency inpatient admission will inevitably decrease. In terms of the effect on the emergency referral rate, this would have an equivalent effect to an increase in demand. For example as part of the attempt to shift elements of care from the acute sector to the primary care sector, there has been an increase in the extent to which GPs carry out minor surgery. This would open up the possibility that an initiative aimed at shifting care away from the acute sector (GPs doing more minor surgery) has had the unintended consequence of shifting a higher proportion of urgent care towards the acute sector. Conversely, incentives to orientate GP efforts towards the kind of patient most liable to become an emergency admission, for example by a focus on chronic disease management, might well produce a positive rather than a negative multiplier effect.

c. The fragmentation of care: loss of continuity

It is always dangerous to compare present circumstance with a past golden age. In this case the seductive image of primary care fifty or thirty years ago would be that of the 'family doctor' able to develop a long-term caring relationship with his or her patients and able to deliver long-term continuity of care on the basis of a full understanding of the patient's history and circumstances.

We do not need to buy in fully to the reality of this image to accept that the dominant direction of travel in primary care has been away from such a pattern and towards more anonymous and impersonal forms of care. Such developments as the move towards larger practices and the extension of out-of-hours services, all increase the probability that a patient will be seen by a practitioner who is not already familiar with their personal and medical history. In such circumstances, there may well be greater tendency to 'play safe'. A given set of symptoms might not be too worrying for a doctor who has known the patient for years and has a full understanding of the patient's medical history, care arrangements and social circumstances. The same symptoms may well set alarm bells ringing on the part of a practitioner who has never seen the patient before and may not have access to the patient's history. There may well be a greater tendency to 'play safe' by referring the patient to hospital.

Any such tendencies towards a fragmentation and impersonalisation of care are likely to be particularly relevant to the treatment of the kind of patients who are the main component of rapidly increasing emergency admissions – the frail elderly with multiple and chronic conditions. They are precisely the kind of patients whose maintenance in the community requires the continuous and comprehensive management of complex needs. As ever we are short of empirical evidence as to how general practitioners' relationships with such patients have changed over recent years.

However it has been suggested that even twenty years ago it was not uncommon for a GP to have a list of 'elderly chronics' whom they would 'keep an eye on' by calling in every two or three months to see how they were doing. Such an arrangement is regarded as being much more of a rarity in the context of the changed circumstances and increased pressures of general practice today.

d. Increase in defensive medicine.

An increase in 'defensive medicine' has often been cited as a possible factor underlying increased emergency referrals. It is suggested that where there is an element of doubt as to diagnosis or treatment, the safest option in terms of the possibility of complaint or even of litigation is to refer the patient for acute care.

Summerton (1995, 2000) confirmed an increase in self-reporting of the practice of defensive medicine in general among GPs between 1994 and 1999:

'Responding general practitioners stated that they are now significantly more likely to undertake diagnostic testing, refer patients and avoid the treatment of certain conditions.' (Summerton, 2000)

e. Alternative routes to emergency inpatient care.

GP referral is of course not the only route to emergency inpatient care. The main alternative routes are via a 999 call or via self-referral to Accident and Emergency. Donaghy et al. (1998) showed that in Ayrshire and Arran for example 62% of emergency inpatient admissions came via the GP referral route whereas in Highlands the figure was 81% with the rest entering acute care via alternative routes.

We have no information on trends in inpatient admissions occurring via the different routes. Following a similar logic to that outlined earlier in this section, it has been suggested that if patients perceive any difficulties in getting an urgent consultation with a GP, they may be tempted by the alternative route of self-referral to Accident and Emergency. Again the implication would be that the closer primary care is to working to capacity, the more likely it is that this route would be taken. In terms of trends, increasing demands for primary care would, according to this logic, spill over into increasing demands on accident and emergency services and, perhaps, emergency inpatient admission.

The role of primary care: summary.

Simply because of their role as principal gatekeepers to the formal health care system, GP referral is inevitably a key factor in understanding emergency inpatient admission. The numerical disproportion between consultations and referrals or emergency admissions creates a 'multiplier': relatively small changes in referral rates produce disproportionate changes in the emergency admission rate. The dominant patterns of change over the last twenty years are likely to have worked to push up the referral rate. These would include a shift away from personal continuity of care, an increase in defensive medicine and an increase in other demands on GPs. However even if none of these changes were occurring, the overall increase in the demand for care directed at a primary care system which is often under pressure and working close to capacity may well have been 'amplified' into a greater increase in demand directed at the acute sector.

However the positive side of this scenario is that any measures directed at 'taking the pressure off' GPs or supporting them by giving better access to alternative forms of care could act just as positively in the opposite direction. The multiplier can work both ways.

2. The role of social care.

This paper has demonstrated that demographic change has played significant but not dominant role in explaining rising emergency admissions among older people and that there is no evidence that, age for age, the population is getting sicker. If increased morbidity in the population (entirely reflecting an

ageing population) explains only a small part of the increase, then the bulk of the explanation must lie in the social realm.

This implies that, in principle, much of the need for care which ends up being provided in the form of acute inpatient care could be provided as social or community care. We have outlined how changes affecting informal care may have produced a mismatch between the care required by elderly people and the 'supply' of informal care. Similarly we have outlined how pressures on primary care may have served to 'multiply' the effect of any increase in demand for formal health care in terms of the impact on emergency admission.

Social care is the third element in this equation. The Wanless Report comes to a clear and unambiguous conclusion on this issue:

'Health and social care are inextricably linked. There are many interactions between the two sectors. For example, recent increases in the number of older people being admitted to hospital in an emergency partly reflect reductions in the availability of appropriate social care.' (Wanless, 2002 p92)

and

'The review believes that the current balance between health and social care is wrong: in particular, care is too focused on the acute hospital setting. Acute care should only be needed in the event of serious ill health. As acute care beds are the most costly beds in the NHS – at around £120,000 a year each – only those patients who need to occupy them should do so.' (Wanless, 2002)

The single most powerful driver of an increased 'social care deficit' may have been the accelerated increase in the number of the very old who live alone. As Grundy (1996) points out

'... use of personal social services is particularly high among very old people aged 85 years and over whose numbers are growing so rapidly. Women make greater use of these services than men partly because more elderly women than men live alone and service use is related to living arrangements. In 1991, for example, 27 per cent of those aged 75 and over who lived alone had a local authority home help compared with 6% of those living with a spouse ... Changes in living arrangements thus may have major implications for the demand for formally provided home care services' (Grundy, 1996)

As already shown in Table 4, the number of people aged 85 and over who live alone in Scotland increased by 46% between 1991 and 2001.

In the Wanless Report a degree of regret is expressed that the review was unable to incorporate an assessment of requirements for social care. One of the Report's recommendations reads:

‘while the Review considered it vital to extend its Terms of Reference to begin to consider social care, it has had neither the information nor the resources to be able to develop a ‘whole systems’ model nor indeed to build up projections for social care in the same level of detail as for health care. It is recommended that future reviews of this type should fully integrate modelling and analysis of health and social care. Indeed it is for consideration whether a more immediate study is needed of the trends affecting social care.’ (Wanless 2002 p120)

These recommendations have recently been followed up in Wales in the form of a review of health and social care. The report confirms the insight that ‘demographic shifts towards increasing numbers of old people could impose greater proportionate growth on social care needs than healthcare needs.’ (Welsh Assembly Government, 2003).

This paper shares the limitation of having been unable to adequately explore the role of social care in influencing the dynamics of emergency admissions among the elderly. However, it would seem to be difficult to argue that social care has received the resources necessary to avoid it being the source of the third of the major ‘care deficits’ - alongside informal care and primary care - which have spilled over into rising emergency admissions among older people.

3. ‘Permissive’ factors.

Other factors are at work which could be termed ‘permissive’: if they were not present it would be difficult for the drivers which we have outlined to have their effect. First and most obvious is the supply factor. If inpatient beds were not available then patients could not be admitted to them

The supply of hospital beds

The supply of hospital beds and ease of access to them is generally accepted to be a factor in determining the level of emergency admissions. This would be a particular instance of Roemer's law whereby any additional hospital beds will tend to be used. (Edwards and Werneke, 1994).

The relationship can be seen to be operating at a variety of levels. As a simple example, one could cite the sudden jump in the rate of emergency admissions in Ayrshire and Arran Health Board when a new hospital was opened in 1993. At the most sophisticated level, ‘supply factors’ are built in to the statistical models developed to underpin the funding formula for

NHSScotland in the Arbuthnott Report. (Scottish Executive Health Department, 1999)

Figure 17 however presents trends which may point to role of the supply of inpatient beds at the most global level in Scotland. The graph shows the number of occupied acute beds in Scotland from 1981 to 2001 divided between elective and emergency inpatients. In addition there are a small number of beds occupied by patients whose acute stay in hospital was initiated by an admission coded as a transfer. There has been a gradual decline in the number of beds occupied by elective inpatients. This will reflect in the main the shift towards day case surgery. This has been almost balanced by the increase in beds occupied by emergency inpatients. The total level of inpatient beds has shown a marginal fall. This would suggest that the increase in the number of beds occupied by emergency inpatients has at least been facilitated by beds being made available by the shift to day case surgery.

'Passive' admissions policies.

The 'default option' across Scotland appears to be that if a patient is referred by a GP for inpatient admission then inpatient admission is what happens. The admission point to acute inpatient care is not a decision point. This would seem to be in part a reflection of the fact that admitting clinicians are often the most junior in the system. This may lead to a tendency to play safe by admitting rather than taking what might be seen as the 'riskier' option of sending a patient home. It has also been suggested that junior admitting staff have a tendency to 'medicalise' cases i.e. to see an underlying medical problem where none exists – again this tending to justify the decision to admit.

There are signs that this is beginning to change. More active policies are being introduced in some hospitals. The longest established example is at the Royal Infirmary of Edinburgh. A pro-active policy, with early involvement of senior medical staff and the multi-disciplinary care team, aimed at admitting only those patients whose interests are best served by inpatient admission, has undoubtedly had an impact on the level of emergency inpatient admissions.

Lothian is the only Health Board in Scotland in which the increase in emergency admissions has levelled out over the last few years. Whether this has been a reflection of a 'capacity squeeze' over the last few years remains a controversial issue (Dunnigan and Pollock, 2003). However it may well be that the main factor underlying the levelling off of emergency admissions in Lothian is the perception that emergency admission is no longer to be regarded as the 'default option' when dealing with elderly patients. This is likely to have been achieved by a powerful combination of factors which amount to the removal of the two 'permissive' factors outlined: increasing availability of beds and a 'passive' admissions system.

4. The fragmentation factor.

"Rates of hospital use are a litmus test for the integration of care"
(Berwick, 2002)

So far the explanation of the increase in emergency admissions among older people has been couched mainly in terms of a chain of causes and effects working their way through the system. For example a decline in the level of care provided by the informal care system is likely to have generated greater demands on the primary care system which has acted as an amplifier in passing these effects on to the acute system. The general picture is one of responsibility for care being passed along from one sub-system or 'silo' to the next.

However we should not neglect the possibility that part of the explanation of the rise in emergency admissions, and particularly of the rise in multiple emergency admissions among older people, lies not in pressures in one part or other of the system but rather in the very nature of system itself. In particular, a major part of the explanation could lie in the extent to which the system does not function as an integrated and co-ordinated system of care but rather as a collection of fragmented, unco-ordinated and specialised silos.

Recognition of this possibility was one of the reasons for publishing trends in multiple emergency admissions at Health Board level in the CRAG Clinical Outcome Indicators Report of 2000. The rationale behind publishing these trends in the context of 'clinical outcomes' was that the extent of multiple admission could be seen as an outcome of the extent to which the whole system of health and social was in fact functioning to deliver integrated and co-ordinated care. In this the Report followed Wray et al. (2000) who proposed the 'hospital multistay rate' as a tool for evaluating 'the ongoing longitudinal co-ordination of care'.

The increase in multiple emergency admissions among older people was highlighted in the Report of the CMO's Expert Group on Healthcare of Older People (Chief Medical Officer, 2002). In that report the concept of 'structural ageism' was introduced to help understand the perception that the NHS does not adequately meet the needs of older people despite there being little or no evidence that NHS staff hold explicitly ageist attitudes.

'The failure of NHSScotland to adapt to the changing needs of a changing population could also be seen as "structural ageism". In other words, a traditional service designed around isolated episodes of care within well-defined specialties and agencies cannot fully meet the needs of increasing numbers of older patients especially those with chronic current, multiple and recurrent medical problems.'

From this perspective, the rapidly rising trend in multiple emergency admissions among older people is a reflection precisely of a system attempting to cope by providing increasing numbers of isolated episodes of care rather than providing the integrated and supportive care which is so often needed.

Harrison (2001) gives perhaps the most extended treatment of how the delivery of health care in the United Kingdom has been structured by the needs of professional specialisation

'... despite repeated protestations that the NHS should 'put patients first', in practice the way that services are organised and delivered, as well as the overall structure of the UK health care delivery system, reflects professional definition of care roles and the rules – including statutory limits on professional roles, accreditation by the professions themselves, or conventions arising from historical developments – that govern the contribution of professionals to the provision of care. Of these many influences, perhaps the single most important is the nature and extent of clinical specialisation, since specialties define both the number and nature of the routes and pathways within the whole delivery system, as well as the services from which each care system draws.'

He goes on to point out how structures developed to reflect such professional priorities are particularly inappropriate in the areas of emergency care and care of the elderly. In the case of the elderly, he points out that '... the prevalence of multiple morbidity challenged the basis on which specialisation has developed' citing McCormack and Ford (1999)

'Doctors working with older people were considered inferior in status and skills, particularly as cure was the highly valued ultimate goal of the medical model. Older people do not fit easily into the standard medical paradigm. A single diagnosis is rarely possible as disease manifestations are likely to be multiple and complicated by the effects of the ageing process The quick cure of one disease with no consideration of motivation, home circumstances and abilities is not possible.'

A similar insight at a general level underlies one of the main arguments advanced in the recent influential report by the Institute of Medicine in the United States. As the population ages and there is an increase in the incidence and prevalence of chronic conditions, there is a need for a shift in the basic paradigm of health care from the isolated episode of treatment to 'care based on the continuous healing relationship' (Institute of Medicine, 2001).

The relationship between the continuing rise in emergency admissions among older people and fragmentation of the whole system of care can be looked at in system terms. In each part of the system – for example, informal carers, social workers, GPs, admitting physicians – those involved make decisions about the appropriate steps to take which are quite rational in the context of their own priorities, incentives and resources. However the outcome of these

separate sets of 'internally rational' decisions has been an outcome at the whole system level which has been neither intended nor desired - the inexorable rise in the proportion of older people admitted for emergency inpatient care.

This logic echoes a general point made by Forrester in his account of the application of system dynamics in an organisational context:

'... people are sufficiently clear and correct about the reasons for local decision-making – they know what information is available and how that information is used in deciding on action. But, people often do not understand correctly what overall behaviour will result from the complex interactions of known local actions.' (Forrester, 1991)

Even if the various 'sub-systems' constitute relatively stable environments for decision-making, we might well be in a position whereby relatively small changes in the inputs to the system (e.g. an increase in demand for formal care) might result in a long-term and consistent change in 'whole system output'. The system may be in 'a stable state of change' in a direction which is totally unintended and largely undesirable.

In this final section of the explanatory part of the paper we have tried to highlight the possibility that part of the explanation of rising emergency admissions may not lie in increasing pressures from outside the system or in bottlenecks or a lack of resources in particular parts of the system. The particularly rapid rise in multiple emergency admissions of older people suggests that some of the explanation may lie in the fragmented structure of the system itself.

Professionals within the system seem to agree. In a recent research project, health and social care professionals' views on preventing older people's emergency admissions were elicited using qualitative, open-ended techniques. One of the three main themes to emerge was that of fragmentation of service delivery. In particular there was a belief that 'a consequence of fragmentation was that patients did not necessarily receive the full range of available services to help them remain at home.' (Scottish School of Primary Care, 2003)

One way of halting the process by which patients are passed from one under-resourced silo to the next until they reach 'the silo of least resistance' – which tends to be acute in-patient care – is to balance the resources of the silos. The other way may be to break down the barriers between the silos.

E. Explaining the rise in emergency admissions among older people: summary.

Figure 18 is a representation of the explanation set out in this section. The factors involved in a complete explanation would add up to 100%. The

diagram should be regarded as showing the best estimate of the relative contribution of the factors discussed in this section.

The ageing of the population has played a part in explaining the overall rise in emergency admissions. For example, the number of people aged 85 and over in Scotland almost doubled from 48,000 to 88,000 between 1981 and 2001. However the size of the 'younger' old age groups (65 to 79) barely changed. The bulk of the increase in emergency admissions has occurred within age groups. In 1981, there were just over 20 emergency admissions for very 100 people aged 80 and over. By 2001 there were 43 per 100. In explaining the rise in multiple admissions, we should regard the ageing of the population as acting to amplify the effects of the trends shown in Figure 2 rather than as a major underlying driver.

It is unlikely that changing levels of age-specific morbidity have played a major role in that the evidence suggests that, age for age, the older population is becoming healthier.

The conclusion must be that the bulk of the explanation of the increase in emergency admissions (and multiple emergency admissions) among older people must lie in the social and organisational realm.

Growing numbers of older people are living alone. In the last decade for example the number of people aged 85 and over who live alone has increased from 30 thousand to 44 thousand. There has been a decline in NHS long-stay beds and alongside the current squeeze on residential care places this is likely to have led to an increase in the number of frail elderly people living in the community. There may have been a decline in the capacity and willingness of society, and families in particular, to provide informal care. In relation to several aspects of change relating to the provision of informal care, the evidence would seem to suggest that while the last twenty years have seen continued change, the pace of change has been slower than in previous years. This would be true for example of the entry of married women into the labour force or the proportion of older people living with their adult children. The overall impression is that the last twenty years have seen the culmination of several long-term strands of social change which have eroded the supports of informal care for older people in the community.

These factors may have increased the demand for formal care directed at the hard-pressed primary and social care sectors. To the extent that these sectors have been unable to satisfy such demands, the provision of care will have been diverted towards the acute sector in the form of emergency inpatient admission.

Other trends within primary care such as increasing alternative demands on GPs time, the growth of defensive medicine and such developments as out of hours co-operatives may have acted to push up emergency referral rates for older people. Such dynamics may have been particularly powerful in the context of the oldest old with chronic and often multiple conditions. The impetus towards inpatient admission may have been reinforced by the

availability of beds freed up by the shift of elective treatment from an inpatient to a day case context and by 'passive' admission policies whereby the default and often unexamined option is to admit an older person to inpatient care.

The final 'facilitating factor' in explaining the rise in emergency admissions may be one of the most fundamental but also the most elusive in terms of direct evidence. This is the historical legacy of fragmentation in the health and social care system whether in the form of the split between the primary and acute sectors, specialisation within the acute sector or the divide between health and social care.

Section III. Implications.

The right policies: but admissions still rising?

There is a certain degree of paradox in the policy-related aspects of the argument so far. Over recent years Scottish health and social care policy has had exactly the emphases needed to have an impact on the problem of rising emergency admissions. For example, the emphasis is on the need to break down the barriers between health and social care and Joint Futures has specifically required the introduction of integrated care teams to help bridge the gap between primary and acute care and help prevent inappropriate emergency admissions among older people. And yet, as we have seen, the trends in emergency admissions among older people still seem to be relentlessly upward.

In the first place, it should be recognised that the newer initiatives in the field of integrated care are only likely to have begun to bite in operational terms in the last year or two.

Trends relating to emergency admissions can only at present be carried forward totally reliably at a national level until the end of 2001. There is a possibility that data for 2002 and 2003 will see a diminution in the rate of increase of emergency admissions among older people reflecting the kicking in of the newer policy initiatives.

However, there are grounds for a certain degree of caution as to the extent to which this will happen. Most fundamentally, the more we have delved into the roots of the drivers of rising emergency admissions among older people, the more deeply embedded they seem to be.

We have a rather paradoxical outcome. The bulk of the rise is not to be explained by population change or rising levels of morbidity but rather by social and organisational factors. This should be a cause for optimism. To the extent that the drivers emanate from within the system of health and social care and especially when (potentially reversible) multipliers are involved whereby relatively small changes in one part of the system can have disproportionate effects in others, our chances of turning things around must be improved.

And yet that is not what it feels like. The rise in emergency admissions seems to go on and on whatever we do.

Emergency admissions: bad for the system, bad for patients?

Should we in fact be trying to turn the increase round? If there are deep-seated factors which are increasing the proportion of older people who end up in hospital, is the fact that they do end up in hospital such a bad thing?

It has been argued, for example, that one of the reasons more people are being admitted to hospital is an increase in 'therapeutic opportunity' – medical advances and technological progress mean that there is more that we can do for older people in hospital. The paradox is that the group of patients among whom numbers of emergency admissions are increasing most rapidly are the group for whom ideas of increasing therapeutic opportunity are perhaps least likely to apply – the oldest old. It is perhaps relevant in this context that, as we have seen, the group which is increasing by far the most rapidly consists of those allocated to the diagnostic category 'signs and symptoms' – a group of patients for whom, despite the great priority placed on establishing diagnosis in the medical model, no definitive diagnosis is achieved during their stay in hospital.

Two main sets of reasons may be advanced as to why the increase in emergency admissions among older people may be not be a good thing: on the one hand it is not good for the system, on the other hand it may not be good for the patients.

Looking first at the system, in this paper we have treated emergency admissions as an end point in a chain of cause and effect within the whole system. The causal chain however flows on beyond emergency admissions: they have knock on effects on other parts of the system such as waiting times and delayed discharges. Recent analysis of Scottish data has confirmed that over 90% of patients experiencing delayed discharge were initially admitted as an emergency. It is accepted that one of the major barriers to bringing down waiting times is the continued drain on resources and the direct impact on available beds produced by rising emergency admissions. Perhaps most ominously of all, emergency admissions do not exert their knock on effects in a stable and predictable fashion – they do so in the form of unpredictable surges in demand creating bed crises which put the whole system under immense strain (Kendrick et al., 1997; Damiani and Dixon 2001). Thus rising emergency admissions are the single greatest source of pressure on the acute sector as a whole.

In terms of patients, to what extent might emergency inpatient admission, in and of itself, have deleterious effects on an older person? One of the implications of this paper is that emergency admission of an older person is often not the result of a balanced and considered decision on the part of all concerned in the care of the patient which takes into account the overall balance of the patient's needs. It is often rather the end result of a chain of separate decisions each taking account of part of the picture. There may be little opportunity to systematically tot up a calculus of the overall benefits and disadvantages of each admission.

There is increasing acknowledgement of the negative aspects of emergency inpatient admission for older people. In a recent presentation at the Scottish Health Services Policy Forum, the former Chief Executive of the American HMO Kaiser-Permanente pointed out that a key element of the Kaiser-Permanente philosophy is the belief that hospital is not the safest place to be - in hospital people can make mistakes and patients are exposed to infection -

and every effort is made to keep their stay as short as possible (Scottish Health Services Policy Forum, 2002)

Such considerations do not seem to be given the same weight in the NHS despite increasing awareness that admission to hospital can be a dangerous thing for an older person.

In terms of hospital acquired infection, the generally accepted incidence rate of 9% of all patients admitted is not insignificant (Walker, 2001). It seems generally accepted that if an older person is kept in hospital for longer than two or three days, the simple fact of being in a hospital bed may begin to lead to a variety of negative consequences including psychological and physical deterioration, loss of functional capacity and the dissolution of support networks which may have existed to maintain the older person in the community. The evidence is that the older the patient the greater the hazards of hospitalisation (Creditor, 1993; Covinsky et al. 2003)

Of course a stress on keeping older people out of hospital must not be pushed too far. Cautionary voices have been raised which emphasise the importance of making sure that necessary services are available to older people which are often only available in the context of inpatient care (Elder, 2001).

However if an older patient has been admitted not because of any balanced assessment that it is the best thing to do but rather because of the way the system tends to operate, and if the very fact of admission, in itself, begins to produce real negative effects on the health of the patient then we really are faced with a dysfunctional system.

Points of leverage: an overview.

The bulk of this paper has consisted of an abstract investigation of the cause and effect relationships which have driven the rise in emergency admissions. In principle the better we understand the cause and effect relationships, the better placed we are to intervene to prevent undesirable outcomes.

It is a long way from a discussion of possible cause and effects however to the valid identification of interventions which will have the greatest effectiveness. In principle, almost every element in the continuum of care which may lead to emergency admission is associated with a 'node' in the overall pattern of cause and effect and offers a potential area for intervention. In the present context they can only be briefly highlighted.

At one end of the continuum measures to promote self-care may have potential (Woods, 2001; Department of Health, 2002). This paper has devoted considerable attention to changes in the social underpinnings of informal care. Should we simply accept these changes as inevitable and deal with their consequences? (Gordon and Donald, 1991). Or are there

possibilities for more active responses ranging from investment in rebuilding social capital in general to greater investment in providing respite and other forms of support for carers.

There seems to be general recognition that investment in social care will have positive trade-off in terms of demands on the health service but translating this awareness into relevant investment in social care seems much more difficult.

We have highlighted primary care as perhaps the key multiplier in understanding rising emergency admissions. It is in this context that the development of integrated and intermediate care initiatives ought to be having an effect in providing GPs with alternatives to emergency referral. However we are only beginning to gather evidence on the scale or focus (e.g. facilitating discharge versus preventing admission) of such initiatives which would be necessary to have the required impact. The dynamics of primary care in relation to emergency admission are perhaps the most crucial and least understood element of the entire system.

Finally the evidence is growing that pro-active rather than 'passive' admissions policies can divert a significant proportion of unnecessary admissions.

If increasing emergency admissions among older people are recognised as a whole system issue, then the increase can be brought under control, not in the interest of saving money but by providing more appropriate and perhaps less damaging forms of care for a significant proportion of the frail older population.

However we are only at the beginning of the process of understanding the whole system effects of specific interventions at specific points in the system.

A focus on vulnerable older people: case management and the integration of services.

The empirical analyses in this paper have perhaps been more successful in identifying the 'who' of the increase in emergency admissions than in giving a precise quantitative picture of the 'why'.

However this identification of the 'who' – a relatively small number of older patients admitted several times as an emergency inpatient – allows the empirical analysis to dovetail with an emerging practical approach to the management of similar types of patient.

It is a central tenet of the 'managed care' movement that if you want to have an impact on inappropriate resource use in a healthcare system you should concentrate on active management of heavy users of the system. One way of doing this is to apply methods such as case management.

In her discussion of case management as applied to 'at risk' older people, Aliotta gives the following definition:

'Case management employs secondary prevention to improve health status and prevent acute exacerbations of chronic and/or 'catastrophic conditions'. It is an 'assertive outreach' service *based in primary care* and targeting people who are known to be high utilizers of healthcare services or at risk of becoming so. Case managers assess individual needs and plan packages of care, and seek to ensure resources within the healthcare system are deployed to meet the needs of each individual.' (Aliotta, 2001).

Case management as an approach to the management of older people with complex needs emerged as a significant feature of managed care in the United States 'when analysts of hospital utilisation began to express concerns that admission rates among the elderly were spiralling out of control and length of stay was beginning to flatten out. Sustaining trends of reducing hospital utilization since that time have been widely attributed to admission prevention strategies – notably to case management and chronic disease management.' (Cochrane, 2001)

The notable example of the application of this approach in the UK has been the pilot project carried out in Castlefields Health Centre in North Cheshire Health Authority. This initiative targeted older people who were at high risk of hospital admission or who were already making heavy use of services. Giving a practice-based social worker and a nominated district nurse responsibility for co-ordinated assessment and support for the target group led to impressive results in terms of reduced admissions and bed days (Aliotta, 2001; Audit Commission, 2002).

As noted above, case management involves primary care based co-ordination of the care of the patient. There may also be potential to make headway with projects initiated from the acute sector. An initiative at Derriford Hospital, Plymouth targeted patients with five or more hospital admissions in a three year period and found that many admissions could be averted by providing alternative care (Bound and Gardiner, 2002).

These are examples of case management aimed at target groups of patients who, regardless of diagnosis, are defined in terms of being heavy users of the health and social care system. Perhaps more widely established are case management approaches which target groups of patients defined in diagnostic terms. A recent example is the application of case management and chronic disease management to heart failure patients in North London (Genesis Consulting, 2000; Haggard, 2003)

There seems to be no hard and fast line between the targeted case management and chronic disease management. The distinction is one of emphasis. In a recent interview in the British Medical Journal, Robert Kane, originator of many of the ideas behind the case management approach as means of preventing unnecessary hospital admission, described the thinking behind the case management/chronic disease management projects currently

being piloted in nine primary care Trusts in the UK. A particular point he stressed, given the fact that 65% of those over 65 have more than one chronic disease, was the importance of dealing with whole people rather than specific organs (Smith, 2003).

Thus the introduction of case management approaches dovetails with the wider movement towards the long-term management of chronic disease but with a broader focus on the management of the needs of the whole person – social as well as health-related – rather than solely the medical management of a specific condition.

Conclusion.

The increase in emergency admissions among older people in Scotland over the last twenty years or more has not in the main been a reflection of an ageing population or increasing levels of morbidity in the older population. The bulk of an explanation must lie in the social and organisational realm. It involves (i) long term patterns of change in the social circumstances and care of older people and (ii) the ways in which the health and social care system has responded to them.

In recent years in Scotland and the UK there has been a major policy emphasis on allowing more older people to live in their own homes. The results of this major feat of social engineering have been superimposed on long term patterns of demographic and social change. We now face a situation in which very few older people live with their adult children and many more are living alone. Between 1991 and 2001, the number of people aged 85 and over living alone increased by 46%. Recent years have also seen the culmination of long term social trends which have served to undermine the supports of informal care in the community.

There has emerged a growing gap between the requirement for care and support – of all kinds – for the older population and the ability of the whole system of informal and formal health and social care to meet those requirements.

The rise in emergency inpatient admissions is to a large extent a by-product of this shortfall. The need is for a spectrum of forms of continuous and preventative care and support alongside, where necessary, acute medical intervention. However the dynamics of the system have been such that it is geared towards the provision of medical care in a crisis. Emergency hospital inpatient admission lies at one end of an escalating spectrum of care and, as has often been pointed out, it is the one element of the system which very rarely says no.

Rising emergency inpatient admissions among older people from this point of view are the result of the whole system translating the increasing care needs

of the older population into the form of care which it is best at providing – short term crisis-management.

A recent study has shown clearly the manifestation at the micro-level of these pressures which we have tracked at the macro-level. Qualitative interviews were carried out with patients identified as being at risk of unsuccessful discharge, their carers and relevant staff. Patients and carers were shown as being engaged in constant process of juggling and negotiating roles, resources and coping mechanisms to maintain the older person at home.

"Where factors intervene to destabilise the negotiation process, whether through an exacerbation of chronic disease or the withdrawal of some resource or the experience of additional stressors, not necessarily health related, then either or both of these players [*patient or carer*] seek a way out. This might present in terms of the patient seeking relief of symptoms or the family wanting respite care. In all the cases examined, the result was admission to hospital, usually, but not always, mediated by community professionals." (Pearson et al., in press)

How do we help shift the system from a paradigm of care for older people which is based on medical crisis management to one which is based on continuous care and prevention?

As one moves from dealing with immediate practical crises to providing longer term preventative support, issues and justifications become less well-defined and more nebulous. It is easier to justify investment where it will make an immediate and obvious impact on well-defined needs than to justify investment further upstream – in building up the social infrastructure, providing respite care, encouraging voluntary activity etc. To the extent that this shift parallels a shift from acute medical care to social support there are of course dimensions to do with the political and legal framework of health and social care which makes social investment all the more difficult.

A simple example from within healthcare can illustrate how the 'logic of the system' can steer resources in a direction contrary to expressed policy. Ritchie (2003) has shown how in the 1990s the number of hospital consultants increased more quickly than the number of GPs. At the same time as 'government policies that sought to promote a primary care-led NHS' between 1995 and 2000, whole time equivalent consultants increased by 18% compared to 3% for GPs.'

There is a general tendency for investment to be skewed towards the crisis-reaction acute end of the system – thus fuelling the dynamics we have been outlining.

One way we can help bring about the shift away from investment in crisis-management is by making upstream investment less nebulous, less a matter of 'just-in-case'. This paper has made some of the first steps in identifying the kind of people who have contributed most to pressures on the acute system. At an individual level it would be possible to do much more in

developing methodologies for predicting which individuals are most at risk of hospital admission. There has been considerable progress in the United States in the development of predictive case finding methodologies to support the type of intensive case management initiatives outlined earlier in the paper (Coleman et al., 1998; Reuben et al. 2003).

The more specifically we can identify those groups of older people who would most benefit – in general and in terms of preventing emergency admissions – from enhanced support the easier it will be to justify investment in such support.

The more quickly we can shift the balance from crisis-management to continuous and integrated care, the sooner will we be able to benefit from a win-win situation.

There would be benefits to the health and social care system as a whole but there would be a particular benefit to acute system. Better targeted and preventative intervention for older people could remove much of the destabilising impact of emergency admission. But most of all there would be benefits for Scotland's older people in providing adequate integrated and continuous care to those who most have need of it.

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