

SCREENING THE ELDERLY AT HOME
DEPENDENCY SURVEILLANCE USING
A QUESTIONNAIRE ADMINISTERED BY LAY VOLUNTEERS.

BY

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Old people frequently arrive in hospital with problems that suggest that admission could have been averted had the problems, frequently not medical, been identified and appropriately managed earlier. Widespread unreported pathology amongst the elderly at home has been well demonstrated.

Screening programmes designed to resolve these problems have been time consuming, and a number of different models have been described. Strategies to reduce the doctor's workload have included the involvement of health visitors, the use of questionnaires, opportunistic case-finding at medical consultations, and attempting to focus on people at risk.

Evaluation studies of the benefits of screening are few and far between and few continuous programmes have been reported. It has become widely accepted that the benefits of screening old people are limited and that the exercise cannot be cost effective.

This study set out to develop and test the benefits of a low cost screening method.

Design - A three year prospective randomised controlled trial of the effects of dependency surveillance using an activity of daily living questionnaire administered by unskilled volunteers recruited for the project.

Patients - 539 subjects aged 75 and over from two General Practices.

Intervention - All subjects were visited at the beginning and end of the study by volunteers who completed a scored activity of daily living questionnaire. The study group were revisited at regular intervals. Individuals with an increase in score >5 were referred to their general practitioners. All interactions with social services and health authorities were recorded for both groups.

Main outcome measures - Mortality, activity of daily living score, total number of days in institutions, geriatric and psychogeriatric service contacts, primary health care team contacts, use of community support services.

Results - The control group spent 33% more days in institutions, mainly long term admissions to residential accommodation, although the study group were admitted to hospital more often than controls (335 occasions v 252). The number of falls reported in the control group doubled (from 17 before first interview to 36 before the last) and in the study group remained unchanged (12 before both interviews). The study group received community support services sooner than the control group. There was no difference between the groups in mortality or activity of daily living score.

Conclusion - Dependency managed by a medical model rather than a social model reduces the need for institution based care of old people. Regular visiting of old people at home by non-professional volunteers using a simple activity of daily living questionnaire is a practical way of identifying their problems and initiating appropriate action. This has implications for the annual assessment of people aged over 75 by general practitioners.

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DEDICATION

**This work is dedicated to all those who
have the gift of inspiring others, and
especially to those who have inspired me.**

DECLARATION

I declare that the project described in this thesis and the writing of the thesis are my own work except as shown in the acknowledgements.

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BACKGROUND TO THE PROJECT

My introduction to geriatric medicine came about by chance. Born and brought up in East Africa, I had become interested in the health problems of the rural areas of the third world while at medical school. I spent my final year elective at the Division of International Nutrition of Cornell University in New York State. Here I discovered that the health problems of the third world were not purely medical, but also involved nutrition, agriculture, economics, transport, housing and numerous other factors not normally considered by the doctor when treating illness. These factors and their complexity for management fascinated me. I worked in Zambia after graduation and then returned to England and took part one of MRCP. In order to take advantage of the learning opportunity presented by the multiple pathology found in old people, I applied for a post as registrar in geriatric medicine in Brighton and prepared for part two of MRCP. Within six weeks of taking the post I had found that the health problems of old people presented similar multi-factorial characteristics to those that had attracted me to the rural areas of the third world. To my surprise I felt committed to a career in geriatric medicine.

During my senior registrar years in Brighton and London, I became curious about what happened to my patients after their discharge into the community. How did they manage and did the services we thought they needed appear? They could quite easily have been readmitted to another hospital or institution and we would have been none the wiser. I was also struck by the never-endingly curious reasons for admission. One lady whose electric blanket had caught fire was not admitted for any medical reason, but because no other accommodation could be found for her. I saw her on the post-admission ward round, and after announcing that she should not have been admitted, said that we should do routine screening

investigations anyway. She was found to have an iron deficiency anemia and gastroscopy demonstrated a gastric carcinoma from which she died a few weeks later.

What could have been done to avoid this crisis admission? What if she had been admitted to a non-medical institution and had had a remediable condition? Was the fire a coincidence, or was it because she had been coping less well because of her illness? It became apparent to me that many questions needed to be asked about hospital admissions of old people and the questions related to what was happening in their homes.

By the time I was appointed to a consultant post, my interest had increased and I was curious to discover what could be done to discover, alleviate and monitor problems faced by old people at home. I read the literature on screening of old people and like many others was struck by the apparent ineffectiveness. From my own experience and from some of the later literature on screening, I felt that the reasons for failure were related to the 'high tech' nature and the costs of the screening programmes in terms of professional time. The outcomes expected were also possibly 'off mark'. Screening was traditionally for medical pathology on the basis that unrecognised illness was causing hospital admissions and that many could be avoided with earlier intervention. The illnesses of old people are many, a geriatric ward is a good clinical accompaniment to most medical textbooks and the prospect of screening all old people for everything in the book in the hope of finding something is at best, daunting. Looked at in this way, I felt that searching for diseases could not be a sound basis for screening.

For younger people, good health means simply freedom from illness. However, many older people with degenerative or chronic disease, declare themselves

happy and healthy. In old age therefore, good health does not necessarily equate with freedom from illness. Health for older people could be considered as that physical state in which they are able to live where and how they please. Failing health therefore, could be equated with increasingly restricted abilities. It would be simpler, cheaper and perhaps more effective to screen for failing ability to cope. Lay people can ask the appropriate questions, they do not need professional training, and outcome measures need not be related to resolution of disease but to ability to cope at home.

In 1982, with these thoughts I resolved that I would undertake a research project to test my ideas. This thesis is the product of that work.

Within Winchester Health District we were making progress in the development of the geriatric service and there was much good will. The Wessex Regional Health Authority Research Committee granted the funding for a half time research assistant and half the running costs, the other half being met by Winchester District Health Authority. Two general practices in Andover, a small town within the health district, agreed to take part in the project. The research assistant was appointed in 1984, the field work started in January 1985 and was finally completed in March 1988.

A new scored questionnaire was devised to cover not only activities of daily living, but also special senses and social and environmental factors, in as simple a form as possible. It was designed to detect change in reported activities of daily living and dependency related social and environmental factors.

I decided to recruit lay volunteer visitors to administer the questionnaire on the basis that many people who would be pleased to help, given a suitable structure

in which to operate, and that this would not involve professionals in the initial screening. I could also cover the entire population aged over 75 on a general practice list at low cost.

Part 1 of the thesis is a review of the elderly screening literature and follows the path of the thoughts which led to the development of the project. Most of the literature is British as it appears that screening of old people is a particularly British phenomenon, although latterly interest in the subject has been increasing, particularly in the United States. The subject of health¹ and assessment programmes² in the elderly have recently been addressed in the Journal of the American Geriatrics Society, and screening of the elderly in the Journal of Gerontology³. However the history and development of the subject have been primarily in Britain, this is reflected in the literature review.

The methodology of the project is described in Part 2. Part 3 contains the results and Part 4 is a discussion of the findings.

PART 1

INTRODUCTION

Chapter 1

INTRODUCTION

"One of the most striking and distressing features of work in a geriatric unit is that patients are so often admitted in a very advanced state of disease....Yet the family doctor may write: ' I saw this patient for the first time yesterday' or ' the last time I saw this old lady was two years ago when her husband died'."

So began Williamson's classic work in the Lancet in 1964 on the unreported needs of old people at home⁴. This plaintive opening rings true to consultants in geriatric medicine up and down the country and has echoed through the corridors of home and workplace of all whose employment has involved them in the care of the elderly.

Old age has long been associated with disease :

Before the very forecourt and in the opening of the jaws of hell, Grief and avenging Cares have placed their beds, and wan Diseases and sad Old Age live there ..."
(Virgil, Aeneid, vi, 273)

So much so that the expectations of old people have been low, and failing faculties and aching joints are ascribed to the natural progression to man's seventh age:

"the last scene of all.....
sans teeth, sans eyes, sans taste, sans everything"
(Shakespeare, As You Like It, II, v, 164)

The first reported project in modern medical literature to specifically address the

health problems associated with old age was the Rutherglen consultative clinic experiment of Ferguson Anderson⁵ published in the Lancet 1955. This was a clinic started by the public health department of Rutherglen for people aged 60 and over with the stated aims:

"to promote health and prevent disease; to compile a register of old people living within the district; to search for early and unsuspected disease by the examination of older people with no complaints and those with minor ailments; to integrate treatment with social environment through aftercare; to run a citizens advice bureau for old people; to research into the ageing process."

Ferguson Anderson found much in the way of symptomatology and pathology, the most common symptoms were related to physical function:

Pain in various sites of the body was the commonest symptom, followed by weakness, breathlessness on exertion, and giddiness. Symptoms of this kind were the main complaints made by 315 (89%) of the 352 cases. Of the 500 old people 126 (25%) were unhappy of whom 61 (48%) lived alone.

Williamson's survey of 1964⁴, reported on 200 people aged over 65. 156 had at least one moderate or severe disability of which more than half were not known to their doctor. In relation to the severity and nature of the problems, he observed:

"Most of the unknown disabilities are slight or moderately severe. This suggests that most old people do not report their complaints to their doctors until the condition is advanced.....It might be argued that many of the unknown disabilities we detected are degenerative and progressive, and therefore not amenable to curative measures. This is unjustifiably pessimistic....."

His assertion of unjustified pessimism reflected the work of Margery Warren^{6,7}, who first demonstrated the fact that old people respond to treatment, and gave birth to the specialty of geriatric medicine. This together with the phenomenon of late presentation of illness in old people was the founding principle for the health screening of people in their old age. Ferguson Anderson's project⁵ was the first to describe a manner in which one might screen for the ailments of old people in a positive fashion. He made the comparison with the screening of children, drawing the distinction which later confounded many who sought to demonstrate a clear benefit for the old:

Some people believe that a consultative health centre for older people is comparable to a child welfare clinic. While it is true that both are services to promote health, there the analogy ends. Children are usually cared for by loving and devoted parents. The aged can seldom hope to receive such care from their children, if children exist at all. The complaints and illnesses of children are generally single or few in number. With the aged they are often multiple and closely interwoven with social problems."

He might have added that people expect children to grow and flourish but that they expect the old inevitably to crumble and die.

It has also been long acknowledged that many old people are admitted to hospital for reasons that are not strictly medical. Although medical problems are present, it is frequently breakdown of support systems at home that precipitate hospital admission. The impression of consultants in geriatric medicine has been that were the problems identified sooner, then the catastrophe could be avoided. Brocklehurst et al⁸ in 1978, reported on the results of screening all people referred for admission to residential care and found that 32% would be more appropriately placed elsewhere as a result of the discovery of unreported yet

treatable illness, 16% to hospital, 4% to sheltered housing and 12% staying at home. MacLennan et al⁹ looked at a group of women admitted to residential care and compared their clinical and social characteristics with a group of similar age who were living at home and housebound. They found that the principal differences were that those admitted to care were more likely to be demented and less likely to have access to support in times of crisis. Those at home had a higher incidence of falls and were less able to care for themselves. In discussing the findings, they pointed out the bias introduced by including only people who were housebound in the control group, stating that this however highlighted the fact that many people living at home are not physically able enough to manage in residential care. The demented people needed less physical assistance but more continuous supervision.

In 1979 Currie et al¹⁰, looking at the possibilities of "hospital at home", identified 30 - 40% of admissions who need not have been admitted to hospital. By 1988 the subject of avoidable admissions to hospital was still a subject for study. Graham et al¹¹ looked at the potential of screening for reducing hospital admissions. They found that in a one in nine sample of people aged over 75 in a London practice (61 of 545) followed up for two years, there were 27 hospital admissions. Of these 19 were for unpredictable acute or acute-on-chronic illness, and the others were admissions from waiting lists. This was however a very small sample and that achieved a low follow up rate (only 45 out of 61 at the end of the study).

Victor and Vetter¹² studied early readmissions to hospital in 2,711 people discharged from non-psychiatric hospitals throughout Wales. They found that within three months, 17% had been readmitted to hospital. Readmission was usually for relapse or breakdown of the original medical condition, the only

variable with any correlation with re-admission was the patient feeling that they had been discharged too soon. They excluded inadequate preparation for discharge as a cause, recommending that access to services could be improved for those recently discharged, although they did not believe that social factors had been a precipitant of readmission. Townsend et al¹³ demonstrated that care attendant support immediately post discharge home did significantly reduce re-admission rates.

These are the factors that lie at the heart of the long, rather muddled and inconclusive path of health screening programmes for old people. The evidence seemed to suggest that looking for and treating medical problems should produce rewards, but these were not found and the costs were high. This thesis examines this path. It then describes the project conducted to test whether a simple screening system could provide an acceptable solution to the problem of identifying and managing the problems of old people living at home. The goal remains to enable old people to continue to live in their own homes and avoid the unplanned potentially avoidable catastrophe of admission to an institution for their long term care.

Chapter 2

THE PHENOMENON OF MULTIPLE UNREPORTED PATHOLOGY

It was Williamson's survey of 1964⁴ that first documented what was already a well recognised but ill defined phenomenon of multiple pathology in old people. His team of two specialists in geriatrics, a psychiatrist and a social worker interviewed, examined and then quantified the range of pathology found in 200 people aged over 65 and compared their findings with practice records. The men, (91), were found to have a mean of 3.26 disabilities of which 1.87 were unknown to their family doctor and the women, (109), 3.42 disabilities of which 2.03 were unknown. Among the problems found were vision and hearing defects in 145 people, respiratory disability in 53 people, heart disease in 37 people, and anaemia, defined as haemoglobin of less than 11.6 gms/100ml, in 16 people. He observed that of 25 men and 61 women with disability associated with the feet, most accepted "foot trouble" as an inescapable accompaniment of old age and few had consulted their doctor about it.

Just 6 men and 2 women were found to have no disabilities and 19 men and 17 women only slight disabilities. All the others, (156), had at least one moderate or severe disability. The definitions of mild, moderate and severe disabilities are not clear from the paper.

Williamson's work triggered a rash of projects and schemes for identifying illness in old people. In 1968 Thomas¹⁴ reported a study of two groups of people aged 65 and over in Bristol. They were invited to attend a screening session by their general practitioner, visited by a health visitor or her assistant and then examined by the author, the assistant medical officer of health. He found in the two groups, that at the age of 65, 3.4% and 7.1% were 'quite fit', 13.2% and 28% had one

disability and 83.7% and 64.5%, respectively, had multiple disabilities. This pattern was similar for people at all ages over 65. Included in the category of disability were features such as blood pressure greater than 170/110, abnormal ECG, albuminuria and haemoglobin less than 12gms/100ml.

Pike¹⁵ reported the activities of a screening clinic run by a practice sister and a general practitioner for people aged 68 and over. Of the 461 women and 210 men invited to attend, 30% of the women and 72% of the men accepted, 29% and 15% respectively declining the invitation as they were already "under surveillance". In 40% of the women and 9% of the men who did not reply to their invitation, there was little "need" identified. Of the attenders, the commonest problems were hearing defects, 46.5%, remedied by ear syringing in one third, and visual defects in 31%, the majority requiring refraction and nearly half referred for treatment of cataract. Haemoglobin of less than 10.9g/100ml was found in 7.6%. Fewer had problems such as hypertension, obesity and abnormal urinalysis. 14% had some difficulty in walking.

A series of similar exercises were published over the following years¹⁶⁻²³, all showing a similar pattern of significant unreported pathology in elderly people.

THE WORKLOAD - REDUCING THE DEMAND ON DOCTORS TIME

The demands of the detailed assessments for the early screening projects, though only occasionally documented^{18,19,21,22,24,25}, were considerable in medical professional time and alternative methods for identifying the problems that required less of the detailed skills of doctors were researched. Health visitors were a natural choice for screening old people as their training and background in prevention equip them to undertake this kind of work. It has even been

assumed that it should fall on them to fulfil the task²⁶. A number of programmes examined the role of the health visitor and of the district nurse in detail. The aim was to test whether or not they were a fair and sound choice on whom to delegate the responsibility of identifying significant health and social problems needing the expertise of doctors for their treatment.

Williamson et al²⁴ described a project using health visitors to provide an initial screen for people "to gather in old people for a consultative clinic". They found that the correlation of the health visitors findings with the physicians assessment of disability was good in 61 out of 73 cases and fair (defined as - "missed or mistakenly found one or two minor conditions which could have led to some action of a therapeutic nature") in 12. Correlation with psychiatrists findings was not as good, 58 good, 14 fair and 1 poor correlation (defined as - "an important condition which would have led to an important error of diagnosis or treatment resulting").

Milne et al²⁷ devised and tested a comprehensive questionnaire for use by district nurses in a screening protocol which included questions on symptoms and some basic physiological measurements such as blood pressure and range of joint movement. They concluded that the staff nurse performance was found to be "satisfactory in respect of accuracy and performance".

Powell and Crombie²⁸ concluded that a community nurse "given a suitable introduction to the needs of the elderly, would be able to use (the) questionnaire effectively". McNabola²⁹ also found that a community sister could satisfactorily fulfil the function.

A number of screening projects have centred the programme around a health

visitor^{16,17,21,22,25,28,30-35}. The role played by the health visitor varied, from running the whole programme and referring to the doctor people she felt required further attention, to doing follow up visits after an initial full assessment.

Harrison et al³⁶ reported benefits, primarily social, in 110 patients aged over 70 receiving unsolicited visits. They decided that visiting would continue, focussing on those aged over 80. MacLennan³⁷ has also argued the case that health visitors would be well suited to the task of screening old people, limiting the screening for asymptomatic disease to those aged over 80.

THE WORKLOAD - THE QUANTITY AND NATURE

The question of the time involved in screening and its cost, varying with the profession of the screener, has presented an on going problem. Estimates of the time required of health visitors has varied from 45 minutes for an initial assessment and 15 minutes for the follow up visit where required²², one hour for a health visitor interview and doctor's examination¹⁸, to an average of 3 hours per person²⁵. Gardiner²² estimated that in the area of the Fife medical board, with 15,000 people aged over 75, 7 full time health visitors would be required with an additional 6 if regular follow up was also to be implemented. Barber and Wallis²⁵ estimated that in a practice of 4,000, for visiting the over 75's, 18 hours per week of health visitor time would be required for the initial assessments falling to 11 hours per week subsequently.

Taylor Ford and Barber³⁸ argued that it is doubtful that health visitors could fulfil these expectations of taking on the task of screening. Quoting Clark³⁹, who stated that 31.3% of their time is spent on home visits, 15.2% on clinics, 27.1% on administration, 13.5% on travel, and 17.0% on unspecified activities, allowing 30

minutes per person and a mean of 17% of her time visiting old people (mean of 31 studies), she could visit just 4 people per week. Assuming a list size of 4000 of whom 10% are aged over 70, she would take 100 working weeks or two years to see them all. Clearly a focussed programme would reduce this time, but there remain other problems.

Health visitors have historically been disinclined to spend time visiting old people.

Taylor and Ford quote Luker⁴⁰:

Two factors probably influence the health visitor's reluctance to indulge in case-finding amongst the elderly and these are: her personal preference, which she can exercise because she works unobserved, and time. Health visitors seem to dislike visiting the elderly. They seem to lack an appropriate frame of reference for dealing with this age group and, when faced with the prospect of case finding, they use lack of time as an excuse for avoiding it.

Health visitors do not regard the elderly as part of their work load in the same way as they do children⁴¹. In a study of the role of primary care teams in the care of the elderly, Woods et al⁴² reported that the whole team, including the health visitors, had reservations about the benefits to be gained for the elderly through health visitor attachment, although they saw them as a group who were at risk.

More recently, in response to a joint report by the British Geriatrics Society and the Health Visitors Association⁴³, Barley⁴⁴ estimated that were health visitors to promote the health of the elderly as much as that of children, and meet the recommendations of the report, another 19,000 health visitors would be required nationally.

Overall health visitors are most unlikely to happily take on the task of regular surveillance of old people. Well qualified though they are to identify the needs of old people, after the first assessment they are unlikely to derive sufficient job satisfaction from regular follow up surveillance for them to wish to continue. In light of the projections of the numbers of health visitors that would be required, the cost would also probably be prohibitive. Similarly it is doubtful if district nurses would easily take on the mantle, for similar reasons, although Luker⁴⁵ has argued the case that they could take up the role. After the first screening/assessment and the initial problems have been resolved, what is required from subsequent visits, and how are they to be conducted? What is there for the nurse or health visitor to do that will let her feel that she has achieved her purpose and "done a good job"?

Chapter 3

REDUCING THE WORKLOAD - FOCUSING ON THOSE AT RISK

A common feature of nearly all screening programmes for old people has been not only the number of "disabilities" found, but also a significant number of fit people. Another feature has been that a significant number of the "disabilities" found were not amenable to treatment. If one were able to exclude the fit and those with trivial problems from the screening/assessment programme, the workload could be significantly reduced. If the health visitor could focus only those who had significant problems discovered by her own assessment, and on those "at risk" or likely to have significant problems, the overall workload might be significantly reduced. A low cost method of identifying high risk groups of old people then, might prove an effective way of reducing costs.

Taylor and Ford studied the phenomenon of "at risk" in some detail in 1983⁴⁶. They first examined the findings of a longitudinal study of 619 people aged 60 and over and compared the medical and social problems discovered against a list of risk factors produced by the World Health Organisation⁴⁷. These include features that are commonly accepted as risk factors:

- The very old (aged 80 years and over)
- The recently widowed
- The never married
- Those who are socially isolated(not necessarily those living alone)
- Those without children
- Those in poor economic circumstances

They added two further groups identified by Arie⁴⁸ and Williamson^{49,50} and two potential risk groups identified by social scientists⁵¹:

Those who have been recently discharged from hospital
Those who have recently changed their dwelling
The divorced and separated
Those in social class V (Registrar General's classification)

They used the data from the project interviews to define and score, domains of "personal resources", reserves upon which individuals draw when coping with difficulties - health, psychological functioning, activity, confidence, social support and material resources. They then studied people's personal resources in relation to their risk factors. They found substantial variation both in the nature and extent of risk/disadvantage. The isolated, the never married and the childless were minimally disadvantaged. The recently widowed, those living alone and those from social class V formed a second category and the recently moved, recently discharged, divorced/separated and the very old, formed a third. The third category included more of those who were disadvantaged than the first or intermediate categories, but even within this category there was wide variation in the extent and severity of disadvantage.

These groups would therefore not be useful for identifying individuals with problems, as so many would be problem free. In a more detailed examination of the subject³⁸, they took all individuals in the lowest scoring decile in each of their resource variables and called them "cases". They examined the case-finding ability of the risk factors and sub groups of the risk factors (e.g. - old widowed females), for each of the personal resource factors. They concluded:

On the basis of our Aberdeen data we have been able to show that, while a number of conventionally defined risk groups are significantly disadvantaged, none contains a sufficiently high proportion of 'cases' for case-finding.

They then turned³⁸ to the work of Barber and Wallis who had developed a postal

questionnaire for use as a coarse screening instrument⁵².

Barber and Wallis had developed an assessment format for use by health visitors to identify problems in old people³⁴. The assessment was completed on those who were brought to the attention of the health visitor, district nurse or general practitioner. They were concerned however that many people might be missed, as to be truly effective a screening programme should cover the entire population. They therefore devised a postal questionnaire sent to all people aged 70 and over⁵². The health visitor visited all those who answered yes to any of the questions. The questions were:

- Do you live on your own?
- Are you without a relative you could call on for help?
- Do you depend on someone for regular help?
- Are there any days on which you are unable to have a hot meal?
- Are you confined to your home through ill health?
- Is there anything about your health causing you concern or difficulty?
- Do you have difficulty with vision?
- Do you have difficulty with hearing?
- Have you been in hospital within the past year?

In the evaluation exercise of the questionnaire, they posted it to 102 people and received responses from 83. Of those not replying, six refused the questionnaire, eight were not at their home address and the remaining five completed it when subsequently visited.

67 people answered "yes" to one or more questions, 61 of these were found to have problems requiring attention. Of the 16 identified by the questionnaire as having no problems, 3 did in fact require attention. The sensitivity of the questionnaire was thus .95 (61/64 with problems) and specificity .68 (13/19 with no problems). Overall it was assessed as correctly predicting between 84 and 98

percent of cases.

Taylor and Ford took these questions and related them to the findings of their study³⁸. Again taking the lowest scoring decile in each of their resource factors as "cases", they studied the efficiency of 8 of the questions from Barber's questionnaire for which they could give a reply in proxy, given the data available to them from their study.

Table 3.1 shows the proportion of people answering "yes" that were "cases". The case-finding efficiency was significantly greater than that of the more conventionally accepted risk factors.

Table 3.1

Case finding efficiency of the Barber screening letter
Proportion of each category who were cases

Question number		Proportion who were cases
Q1	Live alone	.34
Q2	Without relative	.26
Q3	Depend on Help	.75
Q5	Housebound	.75
Q6	Worry about health	1.00
Q7	Poor vision	.54
Q8	Poor hearing	.56
Q9	Recently discharged	.51

Table 3.2, shows the cumulative proportion of the population that needed to be visited (left column) to identify the proportion of the total cases found (right

column). By using just questions 6, 5, 3 and 8, Taylor and Ford could identify 83% of the cases. By adding question 9, one would visit a further 6% of the population to find only a further 5% of the cases. The case finding efficiency of the questions was therefore substantially less below this line. However by visiting all those answering "yes" to any of the questions, one would identify 94% of the cases at a cost of visiting only 61% of the population (cf Barber and Wallis⁵² who visited 80% and found 95% of the "cases").

Table 3.2

Case finding efficiency of the Barber screening letter
Cumulative gains in case-finding

Proportion of population visited	Questions in order of inclusion	Proportion of cases identified
.07	Worry about health(Q6)	.29
.13	Housebound(Q5)	.45
.20	Depend on help(Q3)	.60
.37	Poor hearing(Q8)	.83
.43	Recently discharged(Q9)	.88
.44	Poor vision(Q7)	.89
.48	Without relative (Q2)	.90
.61	Live alone(Q1)	.94

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Research Perspectives on Ageing 6
Age Concern, London 1983.

As a strategy for reducing the workload of screening, visiting only those answering "yes" to the postal questionnaire would seem effective. There remains however the problem of deciding who should be visited on subsequent occasions in an ongoing programme. If one were to repeat the exercise on an annual basis for example, one could be visiting people who answered "yes" to one or more questions, but who were in a stable condition and whose problems were under proper management. By Barber and Wallis's own estimates, this would still

involve a considerable amount of resource (see above), which in the current economic climate could well be used elsewhere, given the probability of stable problems

In a postscript on visiting and "caseness" in Aberdeen, Taylor, Ford and Barber³⁸ examined the people being visited by the general practitioner or health visitor at least three times a year and found that 1 in 5 of those not visited were cases, and 1 in 2 of those visited were not. The determinants of visiting were presumed to be the perception of need by the health professionals and also the ease of identification of the groups. They concluded that the problem with the current pattern of visiting in Aberdeen was not so much the unmet need as the unnecessary visiting.

Chapter 4

THE BENEFITS OF SCREENING AND EFFECTIVE HEALTH

In 1975 Ferguson Anderson⁵³ wrote about the features of illness in old age which suggested that screening should improve the quality of life and also stressed the importance of its multifactorial nature:

Screening in this context means, in effect, the routine examination of older people in regard to their total physical, mental and social health, i.e. the sum of all the problems in these three overlapping fields. This cannot be equated with the search for a single disease in younger people.

This essential difference in the nature of illness and its implications for screening in older people has been the cause of great difficulty in demonstrating any benefits.

In 1970 Lowther et al³¹ had begun to examine the effectiveness of these screening exercises and the implications and benefits of treatment of the conditions found. 83% of people offered a screening examination accepted. Of 300 people aged 60 and over examined, "major conditions" producing functional impairment were found in two thirds. Of these 194 people, 161 had recommendations for therapy and management which were carried out. Of this 161, 68 (23% of the sample examined, 19% of the total invited) benefited from the fact that the problem had been identified by the early diagnostic service. They concluded:

We have shown that, at a conservative estimate, to help 3 patients we must examine 12, find nothing to do in 4, and be unable with certainty to help the remaining 5. Failure to help the remaining five, may be due to the fact that their conditions are irremediable, that the recommendations made are not carried out, that we have inadequate

standards by which to gauge improvement, or that new disabilities have appeared. Whether it is worth while carrying out routine examinations to produce detectable benefit in only 25% of patients can be answered only empirically and in the light of available resources.

Williams' study in 1972¹⁸ of 342 people aged 75 and over attempted to identify the benefits of screening. 87% of his target population agreed to take part in the study which involved a visit to the practice surgery where they were interviewed by a health visitor and then examined by the general practitioner who also did some basic investigations including haemoglobin and some biochemical tests. 77 people who could not attend the clinic were visited at their home. Having examined the patients, Williams then divided them into "Effective health " groups:

It was found that despite the presence of disease processes many of these old people were active and enjoying life. A concept of effective health was developed. Three groups were defined -

Group 1 : normal mobility; able to do cooking, housework, and shopping; cheerful mental state; no incapacitating illness.

Group 2 : movements restricted, housefast; unable to do shopping; able to do cooking and housework; mental deterioration present but coping; illness present but with which the patient can cope.

Group 3 : bedfast; unable to do cooking, etc.; general restriction of movement; severe mental deterioration; incapacitating illness present.

60% were in group 1, 36% in group 2, and 4% in group 3. One year later all the surviving patients were reviewed by the health visitor and reassessed. There was no significant difference in the total number of people in each effective health group. 20 had moved up and 24 had moved down. On closer examination of the

old people involved, he concluded that 27% were improved following action taken at the first screening session. Of those in whom action had been recommended and the recommendations had been carried out, 50% had improved. 10% required further action and in 17% recommendations had not been followed. In looking for improvement in general health, the concept of effective health had been useful, but he concluded that the results were "perhaps a little disappointing". He was confident that the people who had been helped would not have remained as healthy without the attention, and that possibly the "inevitable downward trend as age advances" had masked the benefits of the screening project.

The most important aspect of this piece of work however, was the introduction of the idea that the overall health and function of the old person is of greater importance than the presence of individual disease processes, many of which are degenerative and chronic and probably not remediable. The change in thinking that this brought about was the first step to rationalising the time consuming nature of screening old people and began to focus attention on factors which were more likely to show improvement after appropriate screening and therapeutic intervention.

Barber and Wallis in 1978⁵⁴ reported the results of a review of people who had been involved in their screening programme. They found that the greatest improvements were found in categories such as clothing, bedding, heating, dentition, diet, vision and hearing and the least in such categories as dependency, home hazards, the caring relative and hygiene. The mean improvement in the "medico-social" category was low, but there was a 77.6% improvement in "need for a social service". They concluded that there were undoubted benefits, and many purely medical, but that the assessment system they used was too

comprehensive and too consuming of staff time and resources to be applied to all elderly patients. However a selective assessment system could leave people as needy as those assessed, undetected and unhelped. This prompted the development of their postal questionnaire (see above) another key point in the evolution of screening old people at home.

Chapter 5

CONTROLLED TRIALS OF SCREENING

The first reported controlled trial of screening and surveillance of old people in the community was that of Tulloch and Moore in 1979⁵⁵. 295 people aged 70 and over took part and were randomised into study and control groups. The study group were visited by a nurse who questioned the patient about socio-economic and functional problems. They were then seen by the general practitioner who carried out a medical examination and any investigations thought necessary as a result of the physical findings. They were kept under "regular surveillance" at a clinic run by the authors, practice nurses and health visitors for a period of two years. Factors kept under review included domestic, social and economic factors and medical problems only in so far as they were thought to have a material bearing on health.

They found little difference in health status between the groups at the end of the project, however they demonstrated a greater use of services by the study group, including 76% more referrals (56 vs 33) to outpatients and 53% more hospital admissions (43 vs 26). Length of stay in hospital was however 43% higher in the control group (16 days vs 12 days). They also note that the study group were "kept independent for longer" although it is not clear exactly what this meant.

Vetter, Jones and Victor reported a randomised controlled study of the effect of health visitors in an urban and a rural setting in 1984⁵⁶. 682 people aged 70 and over from an inner city practice and 658 from a rural practice took part in the project. All were interviewed in depth at the beginning and end of the two year project by independent interviewers using detailed questionnaires covering functional disability, mental health, social characteristics and details about

housing. Health visitors (one in the rural area, one in the urban) visited the study group once a year except where identified problems required further visits. They completed a problem sheet and procedure form which were both kept in the patient records, but did not in any other way change their normal practice or the policies of the general practice with respect to older people.

At the end of the study, the health visitor in the inner city practice appeared to have provided considerably increased services for her patients and their mortality was reduced, but the morbidity was the same as in the control group. There was no such effect in the group visited by the health visitor in the rural practice. On examining why there was a difference between the two, the authors were unable to find an explanation. The inner city health visitor made more visits (864 vs 528) and more referrals (357 vs 165) to a wider range of services. In the absence of any clear difference in demographic factors or service provision in the two areas⁵⁷, they suggested that it may have been the personalities of the health visitors that accounted for the difference.

Reduced mortality, fewer admissions to and reduced bed days in hospital, and fewer admissions to nursing homes were reported by Hendriksen et al in a three year randomised controlled trial of assessment and intervention in old people living at home in 1984⁵⁸. 285 people aged 75 and over were visited and interviewed in their own homes every three months and completed a structured questionnaire. A randomly selected group of 287 people of similar age and sex were allocated to a control group and were visited during the final three months of the project. The project team consisted of two home nurses and a research fellow. No clinical examinations were carried out. As well as contact at interview, the old people were encouraged to contact their interviewer by telephone if they required extra visits.

A difference between the two groups began to be apparent at 18 months. An estimate of the financial implications of the programme demonstrated that the costs of researchers' salaries, the additional home help, aids and home modifications to the study group were more than compensated for by the reduction in cost of hospital and nursing home provision.

Chapter 6

ON SCREENING, CASE FINDING AND SURVEILLANCE.

A significant proportion of the difficulties in presenting evidence of benefit in screening programmes for the elderly probably related to the imprecise nature of what was being screened for. Whitby⁵⁹ argued that the following questions should be asked before embarking on a screening programme:

Is the abnormality being sought adequately defined?

What is the basis of selection for the population to be screened?

Is the screening procedure valid for the abnormalities to be detected?

What is the acceptability, efficiency and cost of the screening procedure?

Are there appropriate diagnostic and acceptable forms of treatment facilities available for abnormalities detected?

Is the course of the disease favourably influenced if detected by the screening procedures?

What are the resource implications of the screening procedure?

What is to be done about abnormalities that are neither clearly normal or abnormal?

By asking these questions of screening programmes for old people, it is clear that much of what has been done under the banner of screening the elderly is more properly defined as case-finding. Williamson⁴⁹ provided the clearest definition:

Screening is a form of **secondary** prevention, i.e. the search for precursors of disease in those who don't have the

symptoms of the disease and who believe themselves to be free from it. Case-finding on the other hand, is a form of **tertiary** prevention in which established disease and resultant disability are sought in order to achieve earlier diagnosis and thus create better prospects for care (or alleviation) and rehabilitation.

Clearly, the unreported pathology and problems which "could have been dealt with sooner" to avoid hospital admissions are not precursors of disease. Similarly, it is clear that examining old people for all medical problems does not satisfy the criteria above. Multiple pathology and its prevalence may be known, but it is not an abnormality in its own right, rather a variable collection of many different abnormalities. It has no well defined pre-cursor, although some of its constituents may have, there is no evidence that its treatment is cost effective, many of its constituents are non-remediable, and it has no well defined natural course because it is so variable in its components.

The application of a variety of screening tests have been reported and have their place. For example: MacLennan et al⁶⁰ screening for anaemia in 475 old people living at home, found 7.5% of the men and 20% of the women had haemoglobin concentrations of less than 12g/100 ml, with just 2.4% less than 10g/100 ml. Bahemuka and Hodkinson⁶¹ found abnormal thyroid function tests in 46 (2.3%) of 2000 geriatric inpatients. Screening for these conditions may well be indicated when there is a reason for seeing and assessing an old person. To screen an entire population for these conditions is a different matter. 'Multiphasic' screening where an individual undergoes a battery of laboratory investigations on a routine basis to detect occult abnormalities has been generally abandoned as not cost-effective⁶².

Case-finding can be carried out in a different manner from screening. By asking

specific questions relating to problems commonly faced by old people, clues may be found which will lead on to the identification of treatable disease in identified cases. Freer⁶³ has argued the case of "opportunistic" case-finding during general practitioner consultations with older people where five or six key questions could be asked during any consultation. As up to 90% of people aged over 65 visit their general practitioner at least once a year^{23,64} and the majority of non-consulters are fit and well⁶⁵⁻⁶⁸, one could use the opportunity to ask specific questions to identify 'unpresented' problems.

A critical reappraisal of the phenomenon of underconsulting by Taylor and Ford⁶⁹ concluded that it no longer occurs (for medical problems) as "more recent studies have been based on the uncritical use of estimates of the prevalence of disease rather than self reported illness". They also note the minor importance and non remediable nature of many chronic conditions and quote Hannay⁷⁰ who found that the ratio of medical symptoms to consultations -'the medical symptom iceberg'- is greater between the ages of 30 and 64 than in the over 65's.

Chapter 7

AN ALTERNATIVE FOCUS FOR SCREENING

An alternative focus that might change the historical pattern of problems of screening the elderly, could be to screen for the ability to cope at home as implied by Williams' effective health groups (see above).

Dependency, "the effect that a set of disabilities has on making a person dependent on the care of others"⁷¹ is an important concept because it provides a measure of the relationship between disability and the demand for care, both personal and environmental. It could be more useful than simple diagnosis of illness as an indicator of ability to cope at home. It is related to ability in activities of daily living, deficiency in the special senses of hearing and vision, is associated with burden and stress on carers and can be enquired about in lay terminology. It therefore has the potential for being the target of low cost screening.

The object of screening for dependency, particularly increasing dependency is to identify the factors that are contributing to the deterioration and apply appropriate remedial action before living at home collapses and admission to an institution is precipitated.

Sanford⁷² had found that 12% of geriatric admissions to hospital are for patients whose relatives or friends can no longer cope with them at home. Their decreasing ability to manage themselves and the effect this has on their carers reaches a crisis point and admission to an institution is precipitated.

Having identified increasing dependency, a professional search for cause is required, and must include medical, social and environmental factors and will

require expertise to remedy the problems. A potential trap would be to assume that given the apparently non-medical nature of dependency, professional medical involvement might not be required. The Griffiths report on Community Care⁷³ was specific, the medical professionals would be responsible for the medical problems, housing authorities for the bricks and mortar and social services for the rest. Aspects of this report rekindled anxieties that consultants in geriatric medicine have consistently felt - that there is a risk of returning to the times of the workhouse and poor law infirmaries of pre-NHS days, when remediable medical problems were left unrecognised and untreated^{6,7}.

These anxieties are not without foundation as has been elegantly demonstrated by Buckley⁷⁴. He explored the roles and perceptions of different professionals involved in assessing old people at home by giving a short history and showing them brief video recordings of three old people at home with a variety of problems.

One of the videos showed an interview with an 84 year old lady who had fallen the previous night. In the responses to the question - "At the end of the interview, what areas of assessment would you wish to have covered? List the areas" - he noted:

...The home care group of home organisers did not mention medications in their assessments but some commented that they had a part to play in helping elderly people 'to take their drugs'.....The focus and starting point of assessment differed between groups. For example, social work students focussed on the feelings and attitudes of the old person and helpers; physiotherapy and occupational therapy students focussed on mobility areas. A focus was less apparent for other groups and least evident among health visitors.

The subject is complex and dealt with in considerable detail by Buckley, but there is clearly potential for medical aspects to be ignored if medical professionals are not involved in the assessment. That non-medical problems might not be sufficiently addressed could be covered by appropriate questions in the questionnaire, and assessment and action taken would need to take into consideration the specific problems identified as well as including a comprehensive medical assessment.

The government addressed the subject in the new contract for general practitioners⁷⁵. In order to qualify for the capitation fee for people aged over 75, they must provide either themselves or through a practice team member:

1. A home visit at least annually to see the home environment and to find out whether carers and relatives are available.
2. Social assessment (life style, relationships).
3. Mobility assessment (walking, sitting use of aids).
4. Mental assessment.
5. Assessment of the senses (hearing and vision).
6. Assessment of continence.
7. General functional assessment.
8. Review of medication.

There are no recommendations on how these should be carried out or exactly who should perform them. The list is cognisant of the need to depart from screening for illness but in the minds of the general practitioners the anxieties remain of the likely consumption of professional medical time for as yet unproven benefits.

Finally, in an exploration of appropriate evaluation criteria for screening programmes for the elderly, in a form reminiscent of Whitby's criteria (see above), Rogers et al.⁷⁶ proposed:

1. The program determines the presence or absence of prevalent problems.
2. The program detects previously unknown or untreated problems.
3. The program facilitates the development of a comprehensive plan to maximise the quality and quantity of remaining years of life.
4. The program interacts with the patients' current health care system.
5. The cost of screening is reasonable.

Screening for dependency/disability could satisfactorily meet these criteria.

A MODEL FOR DEPENDENCY SCREENING

The search for increasing dependency requires only that the screened and the screener understand the same language and can answer simple questions about activities of daily living. Given a questionnaire on dependency as described above, with structured replies, it could be possible to use lay screeners for a coarse initial screen. People identified as having increasing dependency by an increasing score on a scored questionnaire would be referred for professional medical assessment to identify the cause. This would ensure that the expensive professional time was focussed only on those requiring it, on those with problems that require remedy. The job of coarse screening being carried out by lay people would remove the problem of poor job satisfaction that could demotivate nurses, health visitors and doctors spending time with large numbers of people who either have no problems or whose problems are known and managed, or non-

remediable.

Screening using a scored activity of daily living (ADL) rating scale with questions on social and environmental factors could function in two ways. Anyone failing to achieve a certain passmark, or those who are found to have a deteriorating score could be referred for further investigation. In the case of the former, a number of problems emerge.

At what level should the pass mark be set? Setting the threshold for further assessment too low could result in either too many people or people with trivial problems being referred for further examination. Setting it too high could mean that people with significant problems were being denied appropriate management.

A problem also arises when considering a second pass screening, say one year later in a regular review programme. Would one refer all the people failing to achieve the same passmark? What of those who have not improved their score sufficiently to pass in spite of appropriate management following a first or previous screen? To refer all these people would soon lead to wasted time, disillusion and disaffection by the professionals.

What of all those who in spite of achieving a passmark in several consecutive screens are deteriorating? These people would be denied the potential benefits of the screening programme until they eventually 'failed'. One can imagine statements of 'it could have been remedied if identified sooner'.

Using a change in score on a questionnaire identifying increasing dependency/disability would overcome these problems. Adopting a passmark at

Figure 7.1

Rapid Disability Rating Scale - 2 (RDRS-2)

Directions: Rate what the person *does* to reflect current behaviour. Circle one of the four choices for each item. Consider rating with any aids or prostheses normally used. None = completely independent or normal behaviour. Total = that person cannot, will not or may not (because of medical restriction) perform a behaviour or has the most severe form of disability or problem.

Assistance with activities of daily living				
<i>Eating</i>	None	A little	A lot	Spoon-fed; intravenous tube
<i>Walking</i> (with cane or walker if used)	None	A little	A lot	Does not walk
<i>Mobility</i> (going outside and getting about with a wheelchair, etc, if used)	None	A little	A lot	Is housebound
<i>Bathing</i> (include getting supplies, supervising)	None	A little	A lot	Must be bathed
<i>Dressing</i> (include help in selecting clothes)	None	A little	A lot	Must be dressed
<i>Toileting</i> (include help with clothes cleaning, or help with ostomy, catheter)	None	A little	A lot	Uses bedpan or unable to care for ostomy/catheter
<i>Grooming</i> (shaving for men, hair-dressing for women, nails, teeth)	None	A little	A lot	Must be groomed
<i>Adaptive Tasks</i> (Managing money/ possessions,; telephone; buying newspaper, toilet articles, snacks)	None	A little	A lot	Cannot manage
Degree of disability				
<i>Communication</i> (expressing self)	None	A little	A lot	Does not communicate
<i>Hearing</i> (with aid if used)	None	A little	A lot	Does not seem to hear
<i>Sight</i> (with glasses if used)	None	A little	A lot	Does not see
<i>Diet</i> (Deviation from normal)	None	A little	A lot	Fed by intravenous tube
<i>In bed during day</i> (ordered or self-initiated)	None	A little (>3hrs)	A lot	Most/ all of time
<i>Incontinence</i> (urine/faeces, with catheter or prosthesis if used)	None	Sometimes	Frequently (weekly +)	Does not control
<i>Medication</i>	None	Sometimes	Daily, taken orally	Daily; injection; (+oral if used)
Degree of special problems				
<i>Mental confusion</i>	None	A little	A lot	Extreme
<i>Uncooperativeness</i> (combats efforts to help with care)	None	A little	A lot	Extreme
<i>Depression</i>	None	A little	A lot	Extreme

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a first run might be appropriate, but using a change of score in all subsequent screens could ensure that problems developing would be detected and remedied.

WHICH INSTRUMENT?

ACTIVITY OF DAILY LIVING AND DEPENDENCY QUESTIONNAIRES

There are a wide range of activity of daily living questionnaires which have an equally wide range of application. During the 1980's the role of 'functional assessment instruments' attracted considerable attention. Different instruments have different applications⁷⁷⁻⁸³.

The best known scales, the CAPE^{82,84}, the Crichton Royal⁸⁵, the Duke's OARS⁷⁸ and the Katz⁸³ take a considerable time to complete, and are often dependent on observed abilities in activities of daily living. For regular screening of people at home these would not be suitable on both counts. The Barthel index, although championed as a standard activity of daily living (ADL) scale⁸⁶, is too short and is insensitive to low levels of disability for use as a screening instrument. Linn and Linn developed the Rapid Disability Rating Scale-2 (RDRS-2)⁸⁷, a very simple questionnaire for use by unskilled staff. It was an activity of daily living scale with scored responses ranging from totally independent to totally dependent in each activity, the responses being added to give a total score (see figure 7.1). One factor that all these scales have in common is that they rely on an observer reporting the abilities of the people being assessed.

Few workers have published reliability studies of ADL scales, although they are generally considered reliable, in spite of a persistent problem of the difference between capability, positively tested, and passively observed functional ability. The problem of loosely defined questionnaires is their reliability, however,

quoting Phillips⁸⁰:

Straightforward linear additive scales, such as the Crichton Royal, enable the reliability errors to cancel each other out, whereas there is a danger that problems may be multiplied in more complex threshold-oriented scales based upon the propositional calculus (eg if A and B and C, or either D or E or F- then X: see the "social integration scale in Booth et al, 1982, pp54-5)⁸⁸.

Given the simplicity, the degree of reliability and short time required for completion, scales such as the RDRS-2 (inter-observer correlation of responses $r = .62$ to $r = .98$, test-retest correlation $.58$ to $.96$) could be a model for a screening instrument.

An additional variable worthy of consideration for inclusion in an instrument to be used for screening would be a record of falls. Falls are a well recognised indicator of failing independence and a precipitant of hospital admission and have even been considered an indicator of impending mortality⁸⁹⁻⁹¹. The importance of the latter finding was questioned by Grimley Evans in a commentary on falls and fractures⁹², stating that the first study to report the phenomenon⁸⁹ was flawed with respect to the selection of the study and control groups, and the association found in the latter two^{90,91} was not as strong.

Falls occur in old people secondary to a wide range of symptoms and as side effects of medication^{92,93}, and therefore have a case for inclusion in a screening programme. A caveat on the reliability of recording falls was made by Cummings et al⁹⁴ who found that 13% to 32% of a group of 304 men and women aged over 60 failed to recall that they had suffered a fall in the previous 3, 6 or twelve month period. Incorporation of a question on falls in a screening instrument would therefore need to take note of this finding.



A final requirement for a screening instrument would be that the responses need to be based on reported ability rather than observed ability as required in the RDRS-2, the Crichton Royal and the CAPE.

Chapter 8

THE HYPOTHESIS

The project described in this thesis was designed to test the following hypothesis:

Illness in old people increases their dependency. Increasing dependency precipitates admission to hospital and other institutions. The object of screening old people is to identify illness and reduce admissions to hospital and other institutions. If you screen old people for increasing dependency, you will identify illness and other problems and reduce admissions to institutions.

The project set out to test the hypothesis by screening for increasing disability using a simple ADL questionnaire administered at regular intervals by lay people. Where increasing disability was detected by the scored questionnaire, referral for professional assessment was triggered.

Part 2 describes the development of the screening questionnaire and the methodology of the project.

SUMMARY OF PART 1

The finding that old people were being admitted to hospitals with advanced disease initiated the first screening programmes for the elderly which identified the phenomenon of unreported multiple pathology as an important factor in the health of older people. The time required by doctors to screen for the constituent disease processes was considerable and attempts were made to reduce the workload.

First attempts were by focussing on the role of health visitors and then district nurses as possible agents of screening in the hope that this would overcome the problems. However the time required of them was still excessive and the nature of the work raised questions of job satisfaction, particularly with respect to the health visitors who have traditionally been reluctant to become involved with the elderly.

Attention then turned to the possibility of using risk groups as a means of reducing the workload. However an examination of the traditional risk groups found them to be unsatisfactory in accurately identifying those with problems. An alternative method using a postal questionnaire as a coarse screening instrument proved more satisfactory. Problems remained with some people with problems not being identified, and a significant number being included in the secondary assessment in whom problems were stable and under appropriate management.

It has been difficult to demonstrate benefits of screening older people, many of the problems identified by screening being chronic, irremediable or of minor importance. The development of the idea of effective health turned attention away from medical disease as the focus and suggested the possibility of screening

for ability to cope at home.

Two controlled trials of screening have shown fewer admissions and less time spent in institutions, but no effect on morbidity. A third showed some benefits in reduction in mortality and increased provision of services in an urban group but not in a rural group.

Combining the ideas of the ability to cope at home and dependency would allow a change in emphasis. A simple questionnaire on reported abilities in activities of daily living, with some questions on social and environmental factors and a linear additive scoring scale, could be sufficiently reliable to enable non professional people to act as screeners. Outcome measures would turn from reduction of morbidity to ability to cope at home.

A screening project based on these principles could fulfil criteria that would be relevant to screening programmes for the elderly.

Illness in old people increases their dependency. Increasing dependency precipitates admission to hospital and other institutions. The object of screening old people is to identify illness and reduce admissions to hospital and other institutions. If you screen old people for increasing dependency, you will identify illness and other problems and reduce admissions to institutions.

PART 2

METHODOLOGY

Chapter 9

METHODOLOGY AND TARGET POPULATION

The study was a three year prospective randomised controlled trial of the effects of dependency surveillance of people aged 75 and over living at home using an activity of daily living questionnaire administered by unskilled volunteer interviewers recruited for the project.

Two General Practices in Andover agreed to take part in the study. Included in the project population were people :-

born in 1909 or before

living in Andover town, including the surrounding housing estates but excluding the villages.

The list of people to be included from one of the practices was compiled by practice staff from their age/sex register. The list for the second practice was prepared by the research assistant. No age/sex register was available. A list was prepared by using the FPC records kept by age group, for each GP. The addresses were then compared with surgery records and a number of people were removed from the list because of death, admission to residential care or removal from the area.

Where it appeared from practice records that a patient had not been seen for some time, information was sought from the Registrar of Births, Marriages and Deaths, for deaths, and from the Housing Department for change of address.

A letter of introduction was sent by the general practitioner to all those included

in the study. Volunteers visited and completed activity of daily living questionnaires and returned them to the research assistant. The whole group were visited at the start and end of the project. Following the first interviews, the sample was divided into study and control groups. The study group was revisited at regular intervals. All results were entered into a computerised database.

Scores derived from the questionnaire completed on subsequent visits were compared with previous scores. Individuals found to have an increase in score of five or more points were referred to the practice for further action as required. Those with specific requests (e.g. bath-seats) were referred to the relevant agency via the general practice. All referrals were recorded.

Figure 10.1

THE WINCHESTER DISABILITY RATING SCALE

SURNAME:

Forename:

Date of Birth:

PERMANENT ADDRESS:

How long there?

PRESENT ADDRESS (if different from above)

Please ring one answer to each question

1. **MARITAL STATUS** Married Divorced/Separated Single Widowed date:
2. **WHO DO YOU LIVE WITH?** Alone Spouse Son/Daughter Other.....
3. **HOSPITAL DURING THE LAST YEAR?** Yes No
4. **HOW MANY FALLS WITHIN THE LAST MONTH?**

5. **WALKING** Goes out independently Housebound can manage stairs Housebound cannot manage stairs Roomfast Chairfast or Bedfast
6. **DRESSING/UNDRESSING** Independent Some difficulty Manages with much difficulty Manages with help Cannot dress
7. **WASHING** Independent Some difficulty Manages with much difficulty Manages with help Cannot wash
8. **BATHING** Independent Some difficulty Manages with much difficulty Manages with help Cannot bath
9. **EATING** Normal Limited diet Liquids only Manages with help Eats hardly anything
10. **SLEEPING** Good nights Interrupted nights Little sleep at night Awake at night asleep by day Never asleep or always asl
11. **TOILET** Independent Commode at night Commode day and night Occasional accidents Frequent accidents
12. **HEARING (with aid if worn)** Satisfactory Slight impairment of hearing Hard of hearing can lip read Hard of hearing cannot lip read Totally deaf
13. **SIGHT (with glasses if worn)** Satisfactory Cannot read Cannot watch television Can hardly see Blind
14. **HEALTH** Good Good on the whole Moderate Poor Very poor
15. **ANXIETY &/or DEPRESSION &/or CONFUSION** Normal Occ slight Occ moderate Freq Moderate Freq severe
16. **COMPANIONSHIP** Good Adequate Little Very little None
17. **PRESENT HELP** None required Some needed and provided Much needed and provided More required Much more required
18. **CARER(s)** None required Carer(s) have no problems Carer(s) have some difficulty Carer(s) under stress Carer(s) can continue
19. **HOME CONDITIONS** Good Adequate Untidy or hazardous Bad Very bad

TIME TAKEN:

Completed by:

Date:

Chapter 10

DEVELOPMENT OF THE INSTRUMENT

THE WINCHESTER DISABILITY RATING SCALE

The Winchester Disability Rating Scale is a questionnaire on a single A4 page with 19 questions. It was originally derived from the Rapid Disability Rating Scale-2 (RDRS-2) described by Linn and Linn⁸⁷, which demonstrated that an extremely simple ADL questionnaire can be reliable.

The WDRS covers a number of descriptive factors and information on recent hospital admissions and recent falls as well as activities of daily living, figure 10.1. One question asks specifically how a person feels about their health, one relates to carers, asked of the carer not the client, and one the condition of the home as reported by the interviewer. Mental state is covered by only one question because of the desire to reduce the impact of the documented weakness in relation to simple mental state questions²⁴.

The questionnaire was designed to be completed during the course of conversation and in response to unstructured questions.

Sixteen questions are used to generate a score. Scoring is from 1 - 5 for each response. The question on falls scored the number of reported falls multiplied by two. The responses to the question on health was scored 1, 2, 3, 5, 6, and to the question on carers 1, 2, 3, 5, 7, to give added importance to the higher scoring responses for what were considered critical factors. "Cannot bath" was scored 4 rather than 5. Questions not included in the score relate to marital status, who the person lives with and whether or not the person was admitted to hospital

during the previous year. These were excluded because the nature of change in these items did not have the same significance for disability and dependency as the following sixteen.

RELIABILITY

A pilot study of 36 interviews was carried out by secretarial and clerical staff from St Paul's Hospital, Winchester, visiting Day Hospital patients in their own homes. Ten patients were visited twice by the same interviewer and nine patients by a different interviewer on the second occasion. The interval between interviews was two weeks. No difficulties were found with the structure or wording of the questionnaire. The inter and intra-observer agreement on responses to questions of the WDRS is shown in table 10.1.

Table 10.1

Test-retest responses for the Winchester Disability Rating Scale.

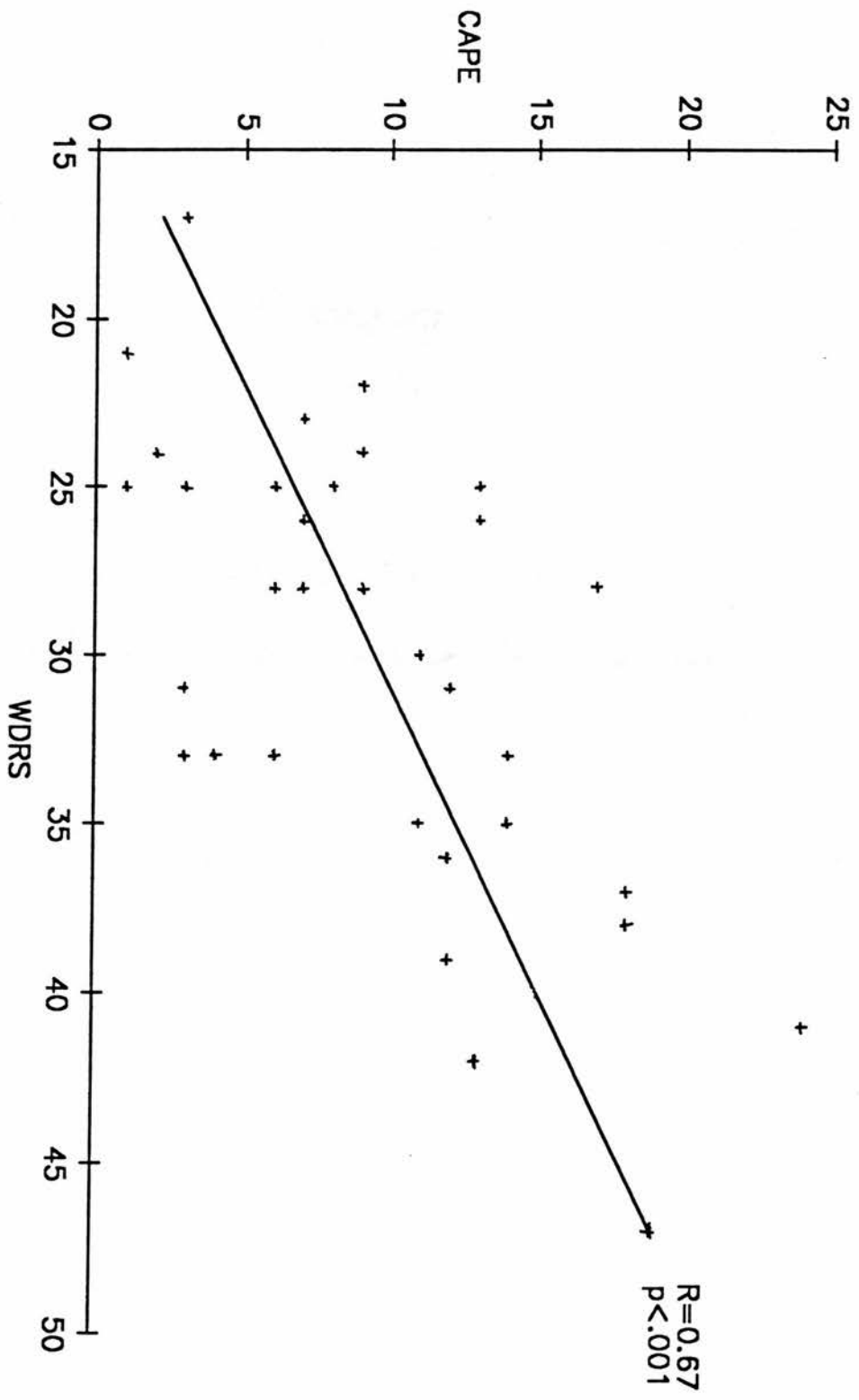
Score Difference	0	1	2	>2
Intra-observer	83%	12%	5%	<1%
Inter-observer	66%	21%	12%	<1%
Total	75%	17%	8%	<1%

Variation was greatest between interviewers on the mental state question.

VALIDITY

The WDRS score was compared with the CAPE⁸⁴ questionnaire score in 40 patients attending the Day Hospital. The CAPE questionnaire was completed by the Day Hospital staff and the WDRS completed in the patients' home by a

Figure 10.2



The Winchester Disability Rating Scale score plotted against the CAPE score for 40 Geriatric Day Hospital patients. Regression line shown.

person to whom they were not known.

Comparison of the results from the two questionnaires (see figure 10.2) gave a correlation coefficient of .67 ($p < .0001$). There was a large discrepancy in score in a few individuals which was explained by the difference in viewpoint. One lady who was fairly able in activities of daily living but who was very thin and felt unwell scored well on the CAPE questionnaire but poorly on the WDRS. She was subsequently found to have a gastric carcinoma.

Chapter 11

THE VOLUNTARY INTERVIEWERS

RECRUITING THE INTERVIEWERS

The first attempt to recruit volunteer interviewers was at a meeting to which voluntary organisations such as the Red Cross, the WRVS and Rotary were invited to launch the project. Only two people were recruited at this meeting. It was thought that this might be because these people had found an organisation that fulfilled their desire for voluntary work. The research assistant therefore visited mother and toddler groups and church groups and then had little difficulty in finding suitable and willing individuals. Copies of a brochure describing the project (see appendix A) were left in key places as such as the library to bring it to the attention of other potential volunteers.

38 volunteers were recruited initially, of these, 6 were sixth form students on a one year course project at the local sixth form college, a further three volunteers joined during the course of the project. In addition to the 6 students, 11 withdrew, two for health reasons, one felt unsuited, and the remaining 8 either moved out of the area or left for other unspecified reasons.

TRAINING THE INTERVIEWERS

All interviewers received a one hour training session when the principles and aims of the project were explained and they were introduced to the questionnaire. They were issued with an identity card, notes of guidance to assist with the completion of the questionnaires and signed an undertaking to keep all information confidential (see appendix B). A further meeting was held after the

first round of interviews to enquire about anxieties or difficulties. There were no problems identified although a small number of interviewers felt ill at ease particularly when visiting single men. These anxieties very quickly passed after one or two subsequent interviews and no further problems were encountered. Initial anxiety about asking personal questions was found to be unfounded in practice.

Regular four monthly meetings were held to maintain interest and exchange information.

Chapter 12

DATA PROCESSING

DATA COLLECTION AND STORAGE

A database was created on a mini-computer running the Pick operating system⁹⁵ and the TPS application generator⁹⁶ based in the Hampshire ambulance headquarters one mile from the research base. Communication was through a personal computer working as a dumb terminal connected to the minicomputer by leased telephone line. The relational database application was written by myself. It stored all demographic information about the interviewees, all questionnaire results and data on all interactions of both the control and study groups with health and support services.

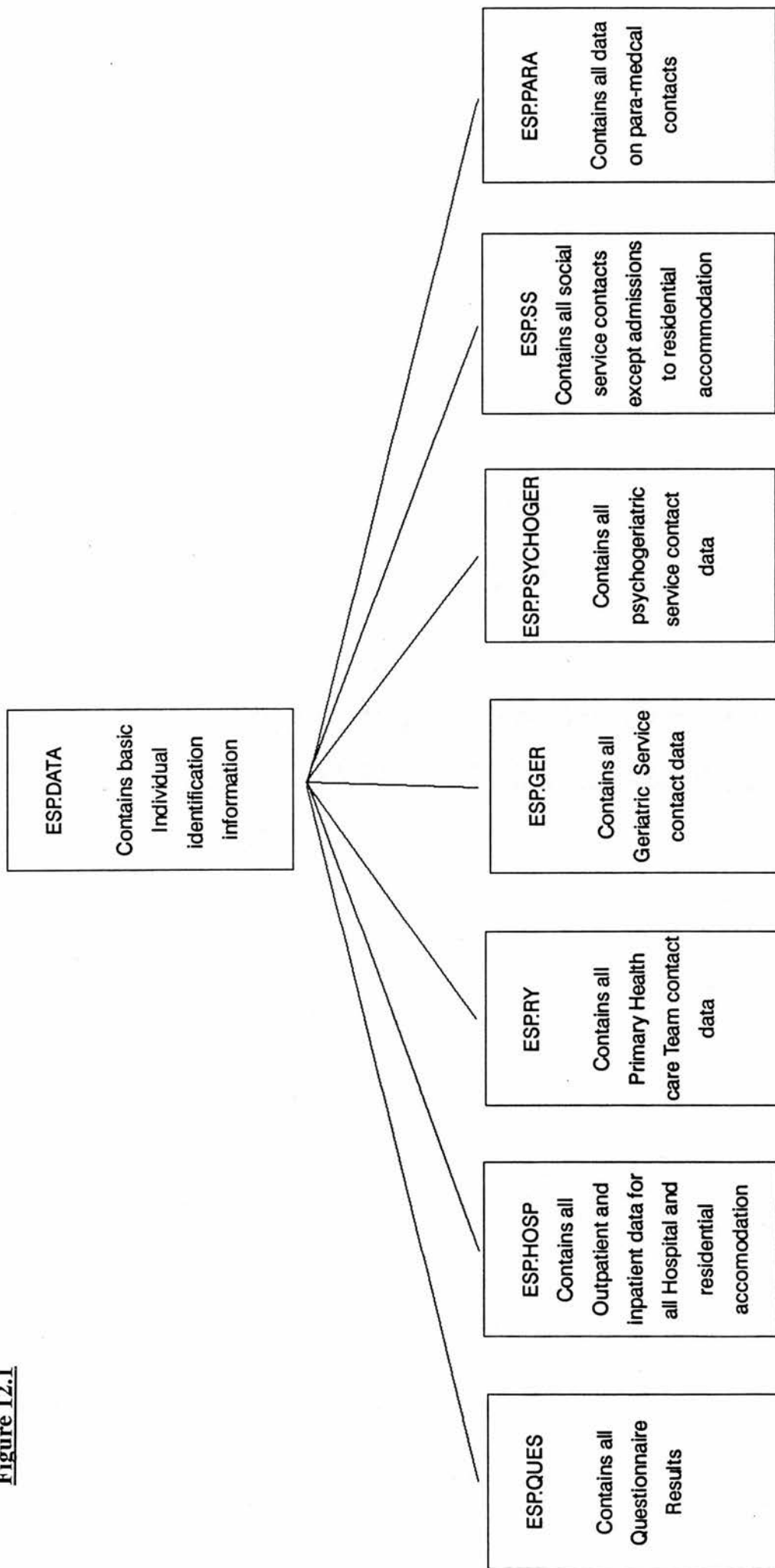
Information was collected:-

From hospital sources: Inpatient and outpatient episodes at the district general hospital, the psychiatric hospital, the local community hospital, and the two geriatric hospitals and day hospitals receiving patients from the area.

From hospital service departments: Domiciliary visit requests for the geriatric and psychogeriatric departments, the community nursing services, health visitors; physiotherapy, chiropody, and occupational therapy departments; speech therapy and audiology departments.

From the social services department: data on all home help, meals

Figure 12.1



File structure of the computer database

on wheels and residential care contacts and admissions.

From the general practices: information on all GP contacts at home and in the surgery; all new district nurse contacts; admissions to private sector facilities was also collected from the interviewees and the general practices.

All data were entered into the computer by the research assistant.

STRUCTURE OF THE DATABASE

Demographic information and key information such as whether the person was in the study or control group were stored in a single computer file. All project generated information such as questionnaire results, details of hospital admissions and primary health care team contacts were stored in transactional files which related information on an individual to his/her record in the demographic file. The database was constructed in such a way that any item of information in any file could be related to the same individual's information in any other file. Key information such as the date of the previous interview and score at that interview could thus be displayed on questionnaire entry screens for example.

Separate data entry screens and data files also included information on reasons for leaving the project, reasons for declining to take part in the project and the results of a questionnaire asking the study group their views of the project.

The structure of the database is shown in figure 12.1. The layout of the data entry screens and variables collected are shown in appendix C.

Figure 13.1

WATCH OVER 75 - ELDERLY SCREENING PROJECT

POSTAL QUESTIONNAIRE

SURNAME	FORENAME(S)	
ADDRESS		
DATE OF BIRTH		
PLEASE TICK AS APPROPRIATE		
ARE YOU AGREEABLE TO PARTICIPATING IN THIS SCHEME?	YES	NO
1. DO YOU LIVE ON YOUR OWN?		
2. ARE YOU WITHOUT A RELATIVE YOU COULD CALL ON FOR HELP?		
3. DO YOU DEPEND ON HELP REGULARLY?		
4. ARE THERE DAYS WHEN YOU ARE UNABLE TO HAVE A HOT MEAL?		
5. DO YOU HAVE DIFFICULTY KEEPING WARM?		
6. ARE YOU CONFINED TO HOME THROUGH ILL HEALTH?		
7. IS THERE ANYTHING CONCERNING YOU ABOUT YOUR HEALTH?		
8. DO YOU HAVE DIFFICULTY WITH VISION?		
9. DO YOU HAVE DIFFICULTY WITH HEARING?		
10. DO YOU HAVE DIFFICULTY WITH EATING?		
11. DO YOU HAVE DIFFICULTY WITH PASSING WATER?		
12. DO YOU HAVE DIFFICULTY WITH YOUR BOWELS?		

PLEASE RETURN IN THE ENVELOPE PROVIDED.

THANK YOU.

Chapter 13

THE STUDY

ORGANISATION OF INTERVIEWS

Interviewers were given a list of old people to visit who were geographically close to their own home in order to make the project a local affair and to minimise inconvenience and travel expenses. They sent a letter of introduction (see appendix B), on the note paper of the appropriate general practice and signed by the senior partner, to all the people on their lists. It described the objectives of the study inviting the old person to take part and asked them to inform their GP or interviewer if they did not wish to do so. It also included a section suggesting a date and time for the first interview together with a contact telephone number if this was not convenient.

Enclosed with the letter was a Barber Postal Questionnaire⁴⁶, figure 13.1, which the person was asked to complete and hand to the interviewer at the first visit. The volunteers then visited, completed the questionnaires and returned them to the research assistant.

ALLOCATION TO STUDY AND CONTROL GROUPS

Following the first interviews, a list of men and a list of women were prepared, sorted by age. The women were then allocated to study or control group using random number tables, their husbands assumed the same group. Where two women lived in the same house they were allocated to the same group. The remaining men were then allocated using random number tables.

DEFINITION OF DISABILITY GROUPS

When all first interviews had been entered into the computer, 100 questionnaires were reviewed by myself and the research assistant and divided into three disability groups. The score ranges that we had defined were identical but for a very few cases and were therefore adopted. The three groups identified were those with no significant disability (score 15 - 20), those with some disability but whose life was not significantly impaired (score 21 - 32) and those with much disability (score >32).

INTERVIEWING PATTERN

People in the study group were visited at regular intervals, those in the "no disability" group at six monthly intervals, those in the "some disability" group at three monthly intervals, and those with "much disability", monthly. Those not wishing to take part were visited, by the research assistant or myself, to discover the reason for not participating. All people in both the study and control groups were visited at the end of the project.

INTERVENTIONS

Where a score change of five or more was recorded, a standard letter was sent to the general practitioner (appendix D). During the course of the project an electronic mail system became available for communications with general practices in the district. This enabled immediate communication with the practices involved in the project (appendix D). This indicated not only the score change but also a summary of the problems that the elderly person was experiencing. In response to this letter, the person was seen either by the general

practitioner or by the district nurse, and feedback on action taken was sent to the research assistant.

After six months it was noted that a number of questionnaires were being returned by the interviewers with non-medical requests or comments. These were often requests for aids for the disabled or home help, comments on housing problems etc. The referral to the GP was modified for these cases. Either a standard letter was sent via the practice to the relevant agency (see appendix D) or direct contact with the agency concerned was made by the research assistant.

ACCEPTABILITY OF THE PROJECT

At the end of the study, all members of the study group were sent a letter together with a questionnaire asking their views of the project. The control group were also sent a letter prior to the final interview, reminding them of the project and asking them if they would agree to another interview (see appendix E).

All questionnaire results and data on interventions and service consumption were entered into the computer database by the research assistant.

Chapter 14

DATA ANALYSIS

DATA ANALYSIS AND STATISTICAL TESTS

Data were downloaded from the mini-computer and analysed on a micro-computer using SPSSPC statistics software⁹⁷.

Differences between the study and control groups in composition, service use, mortality by age group and admissions to institutions were tested using the chi-square statistic.

Winchester Disability Rating Scale score change and the differences in length of stay in institutions were tested using the paired samples t-test.

The differences between the groups in incidence of falls and Winchester Disability Rating Scale score was tested by analysis of variance.

PERCENTILE ANALYSES

In the analysis of the Barber questionnaire results, the total project population was sorted into rank order by Winchester Disability Rating Scale score and divided into ten equal parts - deciles.

In the analysis of mortality by age and disability, the total project population was sorted into rank order by Winchester Disability Rating Scale score at the beginning of the project and divided into five equal parts - quintiles. The percentage of people dying in each age group was then compared for each quintile.

ETHICAL COMMITTEE APPROVAL

Approval for the project was obtained from the Winchester District Health Authority Ethical Committee.

PART 3

RESULTS

CONQUEROR



Chapter 15

RESULTS

RESPONSE RATE

The initial record check on the Family Practitioner Committee lists produced 699 patients. 602 were traceable and 4 were never at home in spite of repeated attempts to contact them, table 15.1

Table 15.1

Reason for people on the initial list of 699 from the Family Practitioner
Committee not being included in the project.

	No.	%
Died	32	4.5
Whereabouts not known	26	3.7
Moved to residential care	21	3
Moved out of area	18	2.8
Visited frequently but never in	4	.5
Final project sample	598	85.5
Total	699	100

COMPOSITION OF THE FINAL STUDY GROUP

Of the final project sample of 598, 539 (90.1%) agreed to take part, 188 (35%) men and 350 (65%) women. The age/sex distribution of the final project group is shown in table 15.2 and is similar to that of those who did not wish to take part, table 15.3. Reasons for not taking part included being fit and therefore not needing a screening programme, or having a close relative who would help with any difficulties that arose. One person who did not wish to be visited by her

interviewer said "I'm a snob and I don't want to talk to someone from that part of town".

Table 15.2

Age and sex distribution of final project group.

Age group	Male		Female		Total	
	no.	%	no.	%	no.	%
75-79	106	56	172	49	277	52
80-85	59	31	120	34	179	33
85+	24	13	58	17	82	15
Total	188	100	350	100	539	100

Table 15.3

Age and sex distribution of those refusing to take part.

Age group	Male		Female		Total	
	no.	%	no.	%	no.	%
75-84	11	79	40	89	51	86
85 +	3	21	5	11	8	14
Total	14	100	45	100	59	100

COMPOSITION OF THE STUDY AND CONTROL GROUPS

There was no significant difference between study and control groups in age, sex, marital status, type of home or household composition.

The distribution of the study population by disability score at the commencement

of the project is shown in table 15.4. 59% were without disability, 35% had some disability and only 6% were in the much disability group. There was no difference in disability between the groups.

Table 15.4

Distribution of the study population by Winchester
Disability Rating Scale Score.

Disability group	Score	Study Group		Control Group		Total	
		No.	%	No.	%	No.	%
No disability	15-20	160	59	157	59	317	59%
Some disability	21-33	98	36	89	33	187	35%
Much disability	>33	14	5	21	8	35	6%
Total		272	100	267	100	539	100

TIME TAKEN TO COMPLETE THE QUESTIONNAIRE

A total of 1,949 questionnaires were completed during the 39 months of the project. The time taken for interviews was short, the deciding factor for longer interviews being that the interviewer "stayed for a chat". 39% were completed in 1-15 minutes, 38% in 16-30 minutes, 12% in 31-45 minutes, and 11% in over 45 minutes. 17% of all interviews took less than ten minutes to complete.

Chapter 16

WINCHESTER DISABILITY RATING SCALE AND THE BARBER POSTAL QUESTIONNAIRE

433 (80%) returned completed copies of Barber's postal questionnaire. 58 (13.4%) answered "no" to all questions. The numbers of people answering "yes" to each question is shown in table 16.1. This table also shows the mean Winchester Disability Rating Scale score for those answering 'yes' to each question and the percentage within the highest scoring decile, as a percentage of those answering 'yes' to the question and as a percentage of the total population responding to the questionnaire.

Table 16.2 shows the cumulative percentage of people answering yes to the questions that identified the highest proportion of people in the highest scoring decile of the WDRS.

23% of the population answered 'yes' to the question 'Do you depend on help regularly'. Of the 10% of the study population with the highest WDRS score, 67% answered 'yes' to this question.

A further 22% of the population answered 'yes' to 'Is there anything concerning you about your health?'. These two groups included 85% of the highest scoring decile.

Adding those who answered yes to 'Do you have difficulty with vision?' included 55% of the population and 90% of the 10% with the highest WDRS score.

If one were to visit this 55% of the population, one would find 90% of individuals with greatest dependency.

Table 16.1

Mean Winchester Disability Rating Scale (WDRS) score of those giving a positive response to questions of the Barber Postal Questionnaire; showing number of positive responses falling within the highest scoring decile of the WDRS, as number and as percentage of total population.

Question	Mean Winchester Disability Score (20.8)	Number of Positive Responses to Barber Quest'aire		Number of Positive Responses in top decile*	Number in top decile as percent of total population
		No.	%		
No Hot Meal	31.8	13	3	6	1.4
Difficulty with Eating	29.0	21	5	9	2.1
Difficulty with Micturition	26.9	33	7	11	2.5
Confined to Home	27.9	79	17	26	6
Need Help	26.5	107	23	29	6.7
Difficulty with Bowels	25.5	60	13	15	3.5
Difficulty Keeping Warm	24.9	69	15	16	3.7
Difficulty with Sight	24.1	130	28	26	6
Worry about Health	23.3	164	35	26	6
Difficulty with Hearing	22.8	142	31	21	4.8
Live Alone	20.7	191	41	14	3.2
No Relative	20.9	80	19	3	.7
Total number of replies = 433					

* Top decile = People with Winchester Disability Score in the highest scoring 10% of the population

Table 16.2

Cumulative percent answering "yes" to postal questionnaire items showing
cumulative % with WDRS score in top decile

Cumulative % of population	Question	Cumulative % in 10% with highest WDRS score
23	Do you depend on help regularly ?	67
45	Is there anything concerning you about your health ?	85
55	Do you have difficulty with vision?	90

Chapter 17

INTERVENTIONS

94 people received interventions initiated as a result of the project, 37 receiving more than one intervention. Thirty nine people received an intervention because of change in their disability score (10 of them more than once), 18 because of a request for an aid or service (14 of them more than once), 15 because of both a change in score and a request for an aid or service (1 of them more than once), and 22 for another reason, including referrals to the housing department or provision of advice (4 of them more than once), table 17.1. Problems were mainly non-medical. In 14 cases treatment had already been started and in 17 there was "no treatment available", table 17.2.

Table 17.1

Project initiated interventions.

Score change only	69
Request for aid or service only	32
Score change + aid or service	16
Chiroprody	3
Health visitor	4
Non-medical intervention (eg housing)	7
Medical information to patient	2
Non-medical information to patient	1
Action by interviewer (eg referred to Social Services)	9
Total	143

Table 17.2

Outcome of project initiated interventions.

Aid/service unsatisfactory (didn't work/fit, disliked etc.)	11
Aid/service satisfactory	46
No further action, treatment started	14
No further action, treatment unavailable	17
No further action, GP reported "no problem"	6
GP - no reply, subsequent score the same	9
GP - no reply, moved to Long stay/died	8
GP - no reply, referred again	9
GP - no reply, aid/service or treatment provided	5
Old person refused help	5
Treatment changed because of referral	9
Not known	4
Total	142

Note: GP = general practitioner.

GERIATRIC AND PSYCHOGERIATRIC SERVICE REFERRALS

There was no difference in the rate of referral for domiciliary visits from the geriatric (19 study, 22 control) or psychogeriatric services (15 study, 17 control), nor for psychogeriatric day hospital (7 study, 5 control) or community psychiatric nursing service (7 study, 6 control).

There were more referrals for the geriatric day hospital for the study group (29 vs 14, X^2 , $p = .02$). The referral rate increased in the study group by the 5th month

of the project, and exceeded that for the control group until towards the end of the second year. Thereafter, the referral rates for the two groups were similar, with a suggestion that referrals for the study group began to fall towards the end of the project, table 17.3a.

COMMUNITY SUPPORT SERVICES

The study group had more referrals than control group for meals on wheels (23 vs 12, X^2 , $p = .06$), home helps (29 vs 23) and aids to daily living (144 vs 118). Table 17.3b summarises the types of aids provided. There were few referrals for day centre attendance (10 study, 10 control) or social services occupational therapist (3 study, 9 control).

Referrals were made sooner for those in the study group. The rate of provision to the study group began to exceed that of the control group by the 9th month of the project and continued to exceed it for the following year, thereafter referral rates were the same, table 17.3a.

Table 17.3a

Referrals to geriatric day hospital, and for aids to daily living, meals on wheels and home help to the study and control groups by six month period.

Six month period		1st	2nd	3rd	4th	5th	6th	7th*	Total
Geriatric day hospital	Study	6	10	7	4	0	1	1	29
	Control	2	4	2	2	1	1	2	14
Aids to Daily Living	Study	6	32	31	25	20	19	11	144
	Control	7	14	23	27	15	23	9	118
Meals on wheels and Home Help	Study	2	7	5	4	7	4	0	29
	Control	3	4	2	2	5	6	1	23
Total	Study	14	49	43	33	27	24	12	202
	Control	12	22	27	31	21	30	12	155

* 3 months only

Table 17.3bNumber and type of aids provided to the study and control groups

Type of aid	Study group	Control group
Bed	7	7
Wheelchair	9	12
Other chair	9	3
Toilet aid	13	18
Commode	17	15
Aid for self care	14	11
Bath aid	41	22
Walking aid	26	23
Other	8	7
Total	144	118

PRIMARY HEALTH CARE TEAM CONTACTS

The pattern of primary health care team contacts is shown in table 17.4. The differences between the two groups were not significant. Because of staff changes at one of the practices, and difficulties in data collection at the other, the data were incomplete for the final 15 months of the project and no period analysis could therefore be carried out.

Table 17.4Primary Health Care Team contacts in the study and control groups.

	Study	Control
GP home visits	163	156
Surgery attendances	1072	957
District nurse visits	119	145

Chapter 18

OUTCOME

367 subjects, 123 (33.5%) men and 244 (66.5%) women, completed a final questionnaire. Of the 172 (32%) who were lost to the project, 119 (22%) died, 25 (4.6%) withdrew, 23 (4.3%) moved out of the area, 2 (0.4%) changed doctor to a different practice, and 3 (0.5%) were in long term nursing care, table 18.1. The difference in mortality between the study and control group is not significant ($X^2 = .19$).

Table 18.1

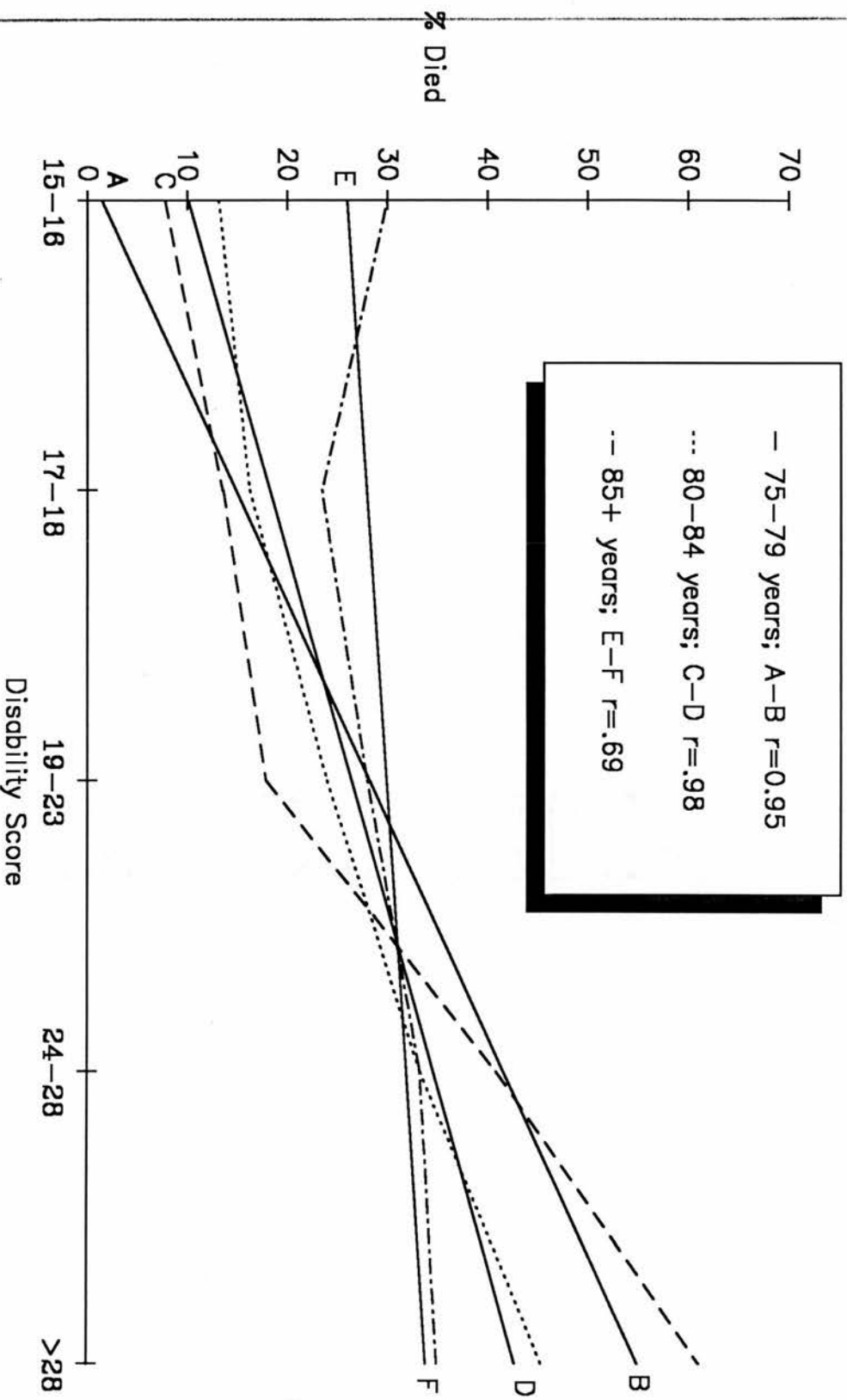
Reasons for leaving study.

	Died	Refused	Moved	Other	Completed final ques.	Total lost from project
Study Group	65	14	11	2	181	89
Control Group	54	11	12	3	186	76
Total	119(22.1)	25(4.6)	23(4.3)	5(0.9)	367(68.1)	172(31.9)

Other = 2 changed to a different general practice,
3 admitted to private sector long term nursing care.

() = percentage of the initial population

Figure 18.1



Correlation of mortality with disability score quintile of the Winchester Disability Rating Scale by age group. Regression lines shown.

ACCEPTABILITY OF THE STUDY TO PARTICIPANTS

All the interviewers were enthusiastic about the scheme, as were the vast majority of the old people. 158 of the 180 people remaining in the study group at the end of the project, completed a questionnaire asking their opinion of the scheme. Of these 158, 142(90%) said they wished to continue with the scheme and made many comments such as "someone cares" "someone to call on" "makes you feel you're not forgotten" etc. Four people were confused about the purpose of the scheme and 13(8%) felt it a waste of time or inappropriate to their needs.

MORTALITY

In the 75-79 year olds, mortality was closely correlated to dependency score. Of those in the highest scoring 20% (score >28), over 60% had died by the end of the project, compared with fewer than 8% of the lowest scoring 20% (score = 15-16). This effect weakened with increasing age, and in the over 85's there was very little relationship between death and dependency score - table 18.2 and figure 18.1.

Table 18.2

Percentage of people dying in each quintile* of the Winchester Disability Rating Scale (WDRS) score by age group.

Score Age Group	First Quintile		Second Quintile		Third Quintile		Fourth Quintile		Fifth Quintile	
	(15-16) %	(n)	(17-18) %	(n)	(19-23) %	(n)	(24-28) %	(n)	>28 %	(n)
75-79*	7.8	(7)	13.6	(8)	17.9	(12)	40.9	(12)	61.1	(11)
80-84**	13.2	(5)	16.3	(8)	24	(12)	33.3	(10)	45.5	(10)
85+***	30.0	(3)	23.5	(4)	28	(7)	33.3	(7)	35	(7)

* The population was divided into five equal groups according to disability score at the start of the project. Thus quintile 1 represents the lowest scoring 20% and quintile 5 represents the highest scoring 20% of the initial population.

* $X^2=37.05$, $df=4$, $p < .0001$

** $X^2=11.07$, $df=4$, $p=.03$

*** $X^2=0.61$, $df=3$, $p=.89$ (quintiles 1&2 combined as each contains <5 cases).

CHANGE IN WINCHESTER DISABILITY RATING SCALE SCORE

The mean disability score for the whole population at the start of the project was 20.9. 181 (67%) of the study group and 186 (71%) of the control group completed the project. In the study group the average score increased from 19.7 to 22.3 and in the control group, from 20.2 to 23.1. The difference in score change between the two groups was not significant (analysis of variance, $p = .58$) - table 18.3.

Table 18.3

Mean initial disability score for the total population, mean initial and final disability scores and score change for those completing the study.

		Total Population	Survivors		Score [#] Change
			Initial score	Final score	
Study Group	Score	20.7	19.7	22.3	2.6*
	Std Dev	(6.5)	(4.7)	(6.9)	(5.3)
	Range	44	24	35	
Control Group	Score	21.2	20.2	23.1	3.0**
	Std Dev	(7.0)	(5.6)	(7.9)	(6.4)
	Range	39	24	36	

Difference in score between study and control groups not significant.

Difference between initial and final score:-

* Study group - paired samples t-test, std. err. 4, deg. of freedom 180, $p < .001$

** Ctrl group - paired samples t-test, std. err. .47, deg. of freedom 185, $p < .001$

INCIDENCE OF FALLS

In the control group there were 36 falls reported in the month prior to the final interview compared to 17 at the first interview (analysis of variance, $p < .001$)

In the study group there was no increase in falls, 12 at initial and final interviews (analysis of variance between the study and control groups at initial interview, $p = .1$, and at final interview, $p < .05$).

ADMISSIONS TO INSTITUTIONS

There was a significant difference in the admissions to institutions. 121 study group and 107 control group individuals had a total of 587 admissions (335 study group, 252 control group), 507 to hospitals and 80 to residential accommodation. The total number of days spent in institutions was 33% higher in the control group (16,088 days against 12,079 days). This difference was accounted for by a greater number of control group admissions (49 vs 28) and greater length of stay in Part 3 and Rest Home accommodation and Psychogeriatric hospital. There was a significant difference in the number of people with admissions lasting more than six months (study group 8, control group 20, $X^2 = 4.78$, $p = .03$). Only one person (from the control group) had two admissions lasting more than 6 months. table 18.4.

The pattern of admissions to District General, Community, Geriatric and Psychogeriatric hospitals and residential accommodation (rest homes and Part 3) was significantly different between the groups. People in the study group were more likely to be admitted to hospital and the control group were more likely to be admitted to residential care, table 18.4. The pattern of admissions that would be expected were the two groups statistically independent is shown in table 18.5.

The difference in time in days in institutions between the study group and the control groups was 4,039 days. An individual in the study group spent an average of 44.4 days in institutions compared with 60.3 days for an individual in the control group, table 18.6. This represents a reduction in days spent in institutions of 26.3% in the study group.

Table 18.4Admissions to institutions, mean length of stay and total length of stay in study and control groups.

	No of Admissions (No of Individuals)		Length of stay (SD)		Admissions lasting >6 months		Total days in institutions	
	Study	Control	Study	Control	Study	Control	Study	Control
District General Hospital	144 (92)	98 (66)	15.9* (18.5)	11.7* (11.0)	0	0	2266	1148
Community Hospital	107 (61)	68 (52)	18.2 (23.4)	18.1 (24.2)	0	0	1933	1238
Geriatric Hospitals	37 (16)	15 (12)	53.9 (104.1)	108.6 (191.5)	2	2	1992	1623
Psychogeriatric Hospital	17 (11)	21 (11)	124.7 (225.5)	176.2 (286.9)	2	5	2121	3700
Residential Accommodation	30 (18)	50 (25)	125.3 (200.3)	168.3 (286.8)	4	14	3752	8394
Total	335 (121)	272 (107)	36.1 (105)	63.8 (171)	8**	21**	12064***	16103***

* 2 tailed t-test, p < .05.,

** X² = 4.78, p = .03

*** analysis of variance, p < .0001

Table 18.5

Actual and expected* numbers of admissions to institutions in study and control groups

	Study Group		Control group	
	Actual	Expected	Actual	Expected
District General Hospital	144	138	98	104
Community Hospital	107	100	68	75
Geriatric Hospital	37	30	15	22
Psychogeriatric Hospital	17	22	21	16
Residential Accommodation	30	46	50	34
Total admissions	335	336	252	251

$X^2=20.85$, $df=4$, $p<0.001$.

* Expected number of admissions if the admission patterns of the two groups were statistically independent

Table 18.6

Average number of days institutions per person in the study and control groups.

	Study Group n=272	Control Group n=267
Total days in Institutions	12064	16103
Days in institutions per individual	44.4	60.3

COSTS

The total cost was £23,600 for the 39 month project. The main cost was the salary, £5,000 p.a., and travel expenses £900 p.a., for the half-time research assistant. The remaining costs, £3,800, were for the printing of stationery, postage, the cost of SPSSPC for the data analysis and a small sum for refreshments for the interviewers meetings. The interviewers were invited to submit expenses for postage and travel, but virtually no claims were received.

PART 4

DISCUSSION

Chapter 19

DISCUSSION OF RESULTS

This project has shown that a group of old people living at home and visited regularly by non-professional volunteers completing a scored activity of daily living questionnaire spent 26.4% less time in institutions than a similar group visited only at the beginning and end of the 39 month project. The pattern of admissions differed between the two groups, as did the total number of days and mean lengths of stay. The screened group were more likely to be admitted to acute, geriatric and community hospitals, but far less likely to be admitted to residential care. 8 in the screened group had admissions lasting longer than six months compared with 21 people in the control group, 4 and 14 of these admissions respectively were to residential accommodation. The difference between the two groups in days spent in residential care, was the equivalent of 3.4 people (1.3%) more from the control group than from the study group spending the entire three year duration of the project in an institution.

The screened group were more likely to be admitted to hospital, and spent twice as many days (1,118 more) as the control group in an acute hospital, 56% more days (695 days) in the community hospital and 22% more (369 days) in geriatric hospitals. They spent less time in psychogeriatric hospitals however, 43% fewer than the control group. The excess (over the control group) days in hospital could be seen as a cost of keeping people out of residential care, as hospital stays are considerably more expensive than days spent in residential care. However the admissions were almost certainly more appropriate than residential care days as the people all returned home. A few people from the screened group admitted to geriatric and psychogeriatric hospitals remained in hospital, however there was no significant difference between the two groups in the number of

these long term admissions.

The screened group received support services sooner than the controls although the total provision was similar between the two groups. The rate of referral had plateau'd in the screened group by the end of the project but was still rising in the control group. A longer study with greater numbers would be required for firm conclusions to be drawn.

The increased number of falls reported by the control group in the month prior to the final interview compared with the month prior to initial interview was highly significant ($p < .001$). There was no increase in the number reported by the study group. Although the difference in number of falls between the two groups at final interview also reached "statistical significance" ($p < .05$) it may well be a chance finding. It would not however be unreasonable to assume that the timely provision of aids and services, and possible earlier medical attention to the study group played a role in controlling the number of falls they sustained. Further study on a larger sample would be necessary to clarify the issue.

There was no difference in mortality between the two groups, but the relationship between age, dependency score and mortality was interesting. For the 75-79 year olds, even a small increase in score was associated with a significant increase in mortality. For the 80-84 year olds the relationship was not as strong, and for those aged 85 and over there was none. Perhaps not surprising in itself, the feature is worthy of further study as it would have significance for actuarial reasons and should perhaps influence the interpretation of dependency across these age ranges.

The differences in resource use and outcome between the two groups probably arose as a result of three factors. First, the study group had increased contact

with the health services as a result of the interventions initiated by the project. Problems identified may therefore have been managed using a geriatric-medical model rather than a social service model. People in the control group failing to cope at home and referred to a social service agency would have been more likely to be assessed by social workers focussing on the feelings and attitudes of the old person and helpers⁷⁴. Inclusion of medical referral in their management might have reduced the impact of the institutionalising elements of social care.

Second, those being interviewed may have developed an increased awareness of the remediability of their disability. As they were being asked about abilities in activities of daily living, they might have realised that increasing difficulties were potentially remediable rather than the irreversible effects of old age, a realisation possibly shared by their carers and relatives. In contrast people in the control group faced with the same problems were perhaps resigned to "go into a home" to resolve them.

Third, the interviewers probably provided information about services and aids to daily living, particularly as they became more familiar with available services and aids and more familiar with the details of problems faced by old people and the variety of solutions available.

DISCUSSION OF METHODOLOGY

The structure of the screening programme worked well. By allocating to the voluntary interviewers, old people who were living in their locality, transport and interviewer costs were completely avoided and the 1,949 interviews were collected at negligible cost. The interviewers thoroughly enjoyed their work as did the old people enjoy seeing them. The regular posting to the interviewers of their list of next interviews and the entering of the results into the computer

database ensured that the interviews were carried out at the intervals determined for the disability group of the person to be interviewed.

There were no problems with the use of the questionnaire. It was deliberately created as an unstructured basic instrument, a similar instrument developed for use in an institutional setting having been found to be reliable when used by unskilled individuals⁸⁷. ADL questionnaires are characteristically robust⁸⁰, and the WDRS was found to be so, the greatest weakness lay in the single mental state question which showed greatest variability. Being just one of 16 scoring questions, however, the total effect of the variability of the question was small. It proved easy to use, and in a total of 85 referrals to the general practice for a reported score change of five or more points, in only 6 was "no problem" reported. These could be construed as false positives and in comparison with other screening instruments such as the Barber Postal questionnaire as examined by Taylor and Ford³⁸, it was relatively efficient in not "wasting" the time of professionals. It is likely that the extent of some problems was not identified, for example the extent of incontinence of urine, but the identification of an increased score and referral to the general practice did highlight problems as evidenced by the number and nature of the interventions.

Chapter 20

COMPARISON WITH OTHER STUDIES

THE BARBER POSTAL QUESTIONNAIRE

The examination of the questions of the Barber postal questionnaire in relation to the WDRS was carried out to compare the former's efficiency in identifying the most disabled as defined by the WDRS, with its efficiency in identifying "cases" in Taylor and Ford's study. In this respect, the questions on worry about health and depending on help were in the top three in both studies, although not in the same order.

The population studied in Aberdeen were aged 60 and over and thus significantly younger than the population in this project. This may explain the higher percentages of the population answering "yes" to these questions, for example 7% of Taylor and Ford's sample answered yes to "Are you worried about your health" compared with 35% in this project. The setting of the highest scoring 10% as the population examined in this way was arbitrary, however it can be seen that in order to visit 85% of this group, one would have to visit 45% of the population (table 16.2) compared with 37% in Taylor and Ford's study. By visiting all those answering yes to the three questions in table 16.2 (55% of the population) one would however visit 90% of the most disabled.

Although of interest, this is not likely to be of significant practical value. There is little point in just identifying the most disabled 10% as the definition is arbitrary, and those who are just outside the top 10% may be just as much in need of attention as those within. The role of the Barber questionnaire is therefore limited. Although an important step in the evolution of screening instruments, it

is likely that more refined tools will be appropriate in the light of the new contractual requirement for general practitioners to carry out an annual assessment of the people aged over 75 in their general practices⁷⁵.

ADMISSIONS TO INSTITUTIONS

The pattern of admission to hospitals was different in this study from that found in others, in that time spent in acute hospital was greater in the study group. Tulloch and Moore⁵⁵ found that the screened group had more admissions to hospital than the control group, but the length of stay was less with the result that total time in hospital was lower than for the control group. Hendriksen et al.⁵⁸ however found fewer hospital admissions and inpatient days in the screened group. Graham et al¹¹, studied reasons for admission to hospital in a population of old people living in London and concluded that intervention at an earlier time could not have reduced the admission rate.

This study did not look specifically at the effect on rates and reasons for readmission to hospital. Victor and Vetter¹² had found that re-admission to hospital was usually for relapse or breakdown of the original medical condition, the only variable with any correlation with re-admission was the patient feeling that they had been discharged too soon. However Townsend et al¹³ demonstrated that care attendant support immediately post discharge home did significantly reduce re-admission rates. A screening programme might have had an influence on this matter.

Hendriksen et al⁵⁸ and Tulloch Moore⁵⁵ both reported a significant reduction in the total number of days spent in institutions, while Vetter's study made no specific comment.

MORTALITY AND MORBIDITY

Mortality was influenced only marginally in the study from Denmark⁵⁸, 56 vs 75 deaths ($p < .05$) and not at all in Tulloch's⁵⁵. Vetter et al⁵⁶ showed reduced mortality in the urban community but not in the rural community in their study of regular visiting by health visitors. No possible explanation is offered in any of the studies.

No study has demonstrated that the screening programme had a measurable effect on severity of disease or disability. It has only been in the management of the problems that differences have been demonstrated although many report increased identification of illness and improved well-being in the screened population. This project did not vary from other projects in this matter.

PROVISION OF AIDS AND SERVICES

Vetter et al⁵⁶ showed increased services provision as a result of the health visitor's in the urban community but not in the rural community. Although their finding may suggest a difference in modus operandi of their health visitors, it is likely that the setting also had an influence on their findings. The nature of the problems faced by old people in rural as opposed to urban settings will be different because of such factors as the availability of support services and family, and different medical practice in the general practices. Although the authors stated that there was no disadvantage of one group with respect to the other both in terms of service availability⁵⁷ or morbidity, it is possible that the expectations of the patients and their immediate carers and relatives will have been different in the different settings and that this will have influenced outcome. The residents of the rural population were from a higher socio-economic group than the urban..

Tulloch⁵⁵ and Hendriksen⁵⁸ also found increased service provision to the screened group. The latter study demonstrated a reduction in referrals for medical services in the study group, apparent after two years. Barber and Wallis in a review of people screened found a "77.6% improvement in need for social service"⁵⁴ and a reduction in the doctors work load after a screening project³².

Unfortunately difficulties in the collection of data from the Andover practices towards the end of this project rendered a similar examination of the workload impossible. The difficulties arose because the practice manager left one of the practices, and the data collection on GP contacts was not sufficiently reliable at the other as a result of the way in which the notes were organised.

conqueror



Chapter 21

EVALUATION OF THE STUDY

The study did not identify whether it was the use of the questionnaire that influenced either the interviewers or the visited population in a way that affected the outcome or whether the visiting alone had an impact. Also the design and content of the WDRS may not have detected all the disability present nor all the change in disability. The strength of the correlation of the scores with the CAPE instrument scores (figure 10.2) was sufficient to confirm that it was measuring behaviourally important characteristics. That the correlation was not stronger is not surprising as the two scales measure dependency in different ways. Given the multi-dimensional nature of disability and dependency, it is most unlikely that there will be strong correlation, unless they are identical⁸⁰.

The relationship of the WDRS scores with other scales is however not of great importance in this project, beyond having sufficient relationship with disability to be not missing a large number of problems. The key function of the scale was to detect significant change over time within the parameters of the scale itself. As stated above there was a low false positive rate. Unfortunately there is no measure of false negatives in the study. This could have been addressed by both a closer examination of a sample of people in whom there was no score change between visits and an examination of a sample of the admissions to hospital and residential care to see how many occurred without a change in score when there had been a slowly developing problem.

There is an argument that it is wrong to "lump together" different characteristics of dependency⁸⁰ given that mental, physical and social factors all contribute to dependency and may well vary independently of each other. For the purposes of

this study, the change in the total dependency was the trigger for a more detailed examination and proper identification of the specific factors contributing to evolving problems. The fact that the examination of factors was by the medical team and included referral to geriatric and social services may well have been the principal critical factor determining the difference in outcome between the groups. Any medical and para-medical problems arising in the control group that were referred first to the social services would possibly not have been identified as such. They may therefore have been resolved in an inappropriate manner.

A number of factors were not clarified by the study. There was no difference in the change in disability between the groups. One might have expected the control group disability to increase at a greater rate than the screened group but this was not demonstrated. An increase in disability score might have been masked by the admissions to residential accommodation in the control group who would then have been excluded from the final interviews. However in the light of the consistent inability of screening programmes to influence overall disability it may be unrealistic to expect a beneficial effect .

Unfortunately the difficulties that developed in relation to the collection of data on primary health care team contacts in the two practices denied the possibility of comparing the effect of screening on their workload with the work of Barber and Wallis²⁵. They found that patient contacts with the practice declined to a level below the pre-screening level following an initial rise at the start of their screening programme.

In order to ensure better data capture in the two practices involved in this project, it would have been necessary to employ a further research person to spend time in the practices with members of the practice team. Winning the support of the two practices was a major requirement for the study. Even more

time spent on this contacts with them could have been time well spent.

Detailed analysis of all admissions to the District General Hospital for a period during the early part of the project would have verified that all admissions were recorded, there was however no suggestion that any were being missed. Had there been a significant number it is likely that some would have been identified in answer to the WDRS question on hospital admission in some cases and also by discussion with the interviewers. Any missed admissions were therefore more likely to be in the control group, so it is possible that the greater number of admissions found in the study group was slightly exaggerated.

The duration of the project was determined at the outset as being three years, this being considered sufficient to detect differences between the groups given the size of the sample. However some differences were evolving to the end of the project, most notably referral rates to community support agencies was levelling off in the study group while still rising in the control group.

Hendriksen et al⁵⁸ stressed the importance of a study over at least three years in order to start to identify differences between study and control groups in a screening programme of this nature. This study would support that argument as it was towards the end of the project that some of the differences were still evolving. One assumes that a period of equilibrium in the differences between the groups would eventually be achieved.

The situation of the control group was also dynamic in that developments in health care provision were taking place around them. Towards the end of the project the health authority introduced a care attendant service for the elderly. This subsequently had a major impact on the ability to maintain disabled people at home and some of the effects may have been appearing before the end of the

project. Such effects could have included a reduction in number of admissions to institutions in both groups and an increased provision of aids and services which might not otherwise have occurred in the control group.

Finally, the setting of this study may well have influenced the outcome. It is not at all certain that volunteers could be recruited for a similar exercise in a different social environment for example. Also the pattern of low incidence of medical problems may have been a feature of the population and the nature of the general practices. A number of studies however have suggested that the "underconsulting" by old people is no longer as great a problem as it would appear to have been in the time of the earliest screening projects⁶⁷⁻⁷⁰.

CONQUEROR



Chapter 22

THE IMPLICATIONS OF THE STUDY

IMPLICATIONS FOR SCREENING PROGRAMMES

Clearly a low cost screening programme can significantly reduce the time spent by old people in institutions, and by implication improve their overall ability to cope at home. This has been the only consistent finding of controlled screening projects. If one were to take this as an achievable goal therefore, the manner in which the screening was to be conducted would become the overriding concern, the desire being for maximum benefit at minimum cost.

The setting of a screening programme could be of great importance. In considering the establishment of a standardised protocol, it would be important to devise structure and content in such a way that effectiveness will not be influenced by the environment in which screening is taking place, be it inner city, affluent rural south east England, Welsh valleys, northern England or Scottish highlands. In all areas, although the pattern of disease and underlying pathology may vary, the practical problems faced by the old people in terms of loss of function and ability in activities of daily living will be the same. The prevalence and extent of disability will vary but the nature of the problems will not.

A screening protocol based on the recording of disability, and particularly the change in disability could have a low cost universal application. Avoiding pass/fail type tests and relying on change as a trigger for further action will ensure that one does not miss the deteriorating fit person in a pass category or conversely include too many people for local remedial and support services in a fail category.

Regular visiting for screening purposes is most likely to continue when it is structured, both in frequency and in content. The use of a questionnaire such as the Winchester Disability Rating Scale, which is quickly completed, gives a reason for and structure to the visit and ensures that relevant matters are consistently covered. By involving unskilled people one avoids the disillusionment of medically trained professionals spending a lot of time on contacts that do not require their skills.

This screening structure also gives useful information on dependency and disability in the community for planning purposes. Details on mobility, bathing ability and social isolation can easily be gathered on a regular basis. By adding questions on service use, one would have a tool for targeting resources on people who required them. Further work using the WDRS in sheltered housing has already been conducted, several thousand tenants being quickly and easily surveyed.

The fact that few medical problems were identified by the project reflects the now widely accepted belief that many of the problems associated with living at home in old age may be remedied by non-medical interventions. This in no way reduces the importance of medical involvement in screening. It is of the utmost importance that medical involvement is not by-passed, as physical and medical problems can be all too easily overlooked⁷⁴ and people placed inappropriately in residential care⁸.

This project was run in close contact with the general practices but was the responsibility of the geriatric service. A similar programme could be run from a general practice and would be particularly relevant in the light of the new contractual requirement for general practitioners to visit patients aged over 75 at least once a year⁷⁵.

THE FUTURE OF SCREENING OLD PEOPLE AT HOME

This thesis has taken forward the idea that screening can have a positive effect in maintaining old people in their homes. It has demonstrated that a simple structure works and can be maintained as an ongoing programme. By focussing on function as opposed to disease it has demonstrated significant benefits at low (screening) costs. There remains a number of areas to be addressed however.

Given a low cost initial functional screen, who should perform the assessment of those referred for further assessment? Should this be the general practitioner, the health visitor or perhaps the geriatric services? What are the costs of the exercise when the increased services consumption and hospital admissions are taken into account? What are the implications for the quality of life for those who are enabled to remain at home and for their carers?

The problems of old people admitted to hospital late in their illness or with non medical problems of social and domestic breakdown has not yet gone away. Nor has the problem of inappropriate admission to residential care. However the parameters are set for a large scale study which could answer the key questions in an arena of significantly greater understanding than was present in the early days of screening.

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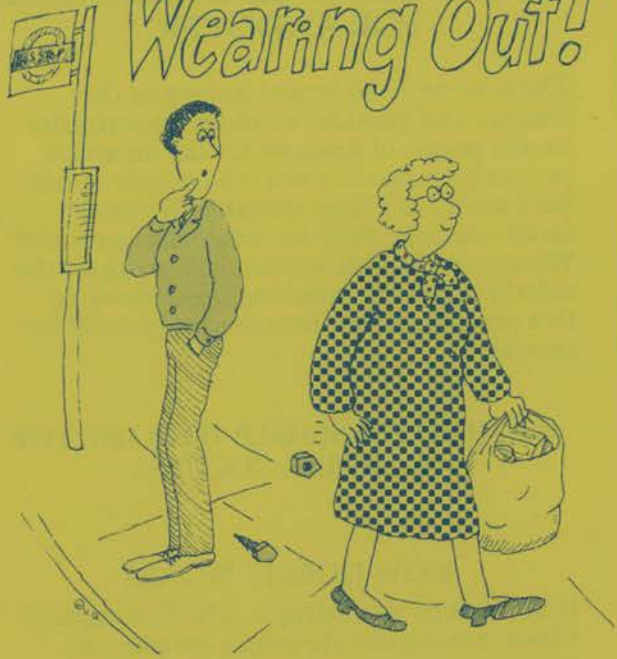
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60611, USA.

APPENDIX A

Volunteer recruiting pamphlet

Watch Out for Wearing Out!



Opportunities for
volunteers for
WATCH OVER 75
— an Early Warning Scheme
*to keep Andover's
Elderly Healthy*

If you would like more information or have an enquiry to make, please contact:

Dr G.Iain Carpenter — Consultant Physician in Geriatric Medicine

or

Mrs Gill Demopoulos
St Paul's Hospital
Winchester

Telephone enquiries (mornings) Winchester 60661.

Watch Out for
Wearing Out!



Opportunities for
volunteers for
WATCH OVER 75
— an Early Warning Scheme
*to keep Andover's
Elderly Healthy*

Wearing out is necessarily a part of old age, but early warning of simple illnesses may prevent long term difficulties for elderly people.

WATCH OVER 75 — AN EARLY WARNING SCHEME FOR ANDOVER

The scheme is the first of its type in the country and provides a unique opportunity for the people of Andover to take an active part in helping the town's old people. It has been set-up as a joint initiative by local family doctors, their nursing colleagues and Winchester Health Authority. Caring for the elderly is a major problem: in Andover, in five years' time, one in seven people will be over 65.

WE NEED YOUR HELP TO MAKE THE SCHEME A SUCCESS

HOW DOES IT WORK?

It couldn't be more simple. The first signs of illness among elderly people are often an inability to manage the ordinary activities of daily life. All old people in the scheme, will be regularly interviewed in their own homes by a team of voluntary visitors. They will be asked straight-forward questions about problems with hearing, vision, dressing, washing, walking etc. This means that any change in their health or abilities can be quickly spotted and dealt with when the completed questionnaires are analysed by doctors and other health professionals. All information will be treated with the strictest confidence — interviewers will be asked to sign an undertaking guaranteeing this.

THE WORK OF THE VOLUNTARY VISITOR IS VITAL

WHICH ELDERLY PEOPLE WILL TAKE PART IN THE SCHEME?

Initially the elderly people to be interviewed will live in Andover, be aged 75 or over and be registered with two specially chosen group practices in the town.

All will have received a letter from their GP inviting them to take part in the scheme so all will have had an opportunity to say no.

WHAT WOULD THE VOLUNTARY VISITOR DO?

After a short training session each volunteer will be asked to visit up to four people a month. Each questionnaire takes about 15 to 20 minutes to complete but you may visit as many or as few people as you wish so it needn't take up much of your spare time. The names and addresses of those to be visited will be given to each volunteer together with blank questionnaires.

Most of the elderly people in the scheme will enjoy being visited although some may be ill and lonely. Voluntary visitors too will probably enjoy meeting and talking to the elderly people.

WHAT SORT OF VOLUNTEERS ARE WE LOOKING FOR?

We are looking for sympathetic people who will do the interview work on a voluntary basis. Volunteers are likely to be ordinary people and need not have visiting or interviewing experience. What is more important is your goodwill, enthusiasm and a desire to help your community's elderly.

You must be at least 16 years old, but we anticipate that volunteers will come from a wide variety of backgrounds.

The work may appeal to:-

- Those who have recently retired.
- Those at college.
- Mothers with young children.
- Those temporarily out of work.
- Those who are keen to do voluntary work but who do not want to be too heavily committed.
- Those who have an interest in elderly people.

APPLICATION FORM

Please complete and return this form. If you can't help, pass this leaflet to a friend or neighbour. Remember, we need your help to make the scheme work.

Name _____

Address _____

Telephone Number — Home _____

Office _____

Would you have the use of a car? _____

When can you attend a training meeting?
(Please tick as appropriate)

	Mon	Tues	Wed	Thurs	Fri
am					
pm					
eve					

Please give the name and address of someone who would give you a personal reference.

Name _____

Address _____

Please return this form to Mrs G Demopoulos, St Paul's Hospital, Winchester, Hants.
Tel Winchester 60661 (mornings)



APPENDIX B

**Volunteers identity card, confidentiality form,
letter of introduction and notes of guidance
for completion of Winchester Disability Rating Scale.**

ELDERLY SCREENING PROJECT

Department of Geriatric Medicine
St Paul's Hospital,
Winchester,
Hants.
SO22 5AA

Telephone:
Winchester 60661 ext. 28



**WINCHESTER
HEALTH
AUTHORITY**

Dr. G.I. Carpenter Consultant Geriatrician
Mrs. G. R. Demopoulos Research Assistant

WATCH OVER 75

THIS IS TO CERTIFY THAT

IS AN APPROVED VOLUNTARY VISITOR FOR "WATCH OVER 75".

Signature Interviewer

Signature Doctor

Date

ELDERLY SCREENING PROJECT

Department of Geriatric Medicine
St Paul's Hospital,
Winchester,
Hants.
SO22 5AA



**WINCHESTER
HEALTH
AUTHORITY**

Dr. G.I. Carpenter Consultant Geriatrician
Mrs. G. R. Demopoulos Research Assistant

WATCH OVER 75

Mrs visited/will visit

at on

and will call again at on

If this is inconvenient please telephone

ELDERLY SCREENING PROJECT

Department of Geriatric Medicine
St. Paul's Hospital,
Winchester,
Hants.
SO22 5AA



**WINCHESTER
HEALTH
AUTHORITY**

Telephone:
Winchester 60661 ext. 28

Dr. G.I. Carpenter Consultant Geriatrician
Mrs. G. R. Demopoulos Research Assistant

WATCH OVER 75 - ELDERLY SCREENING PROJECT

I understand that the information that I shall be collecting from elderly people
in Andover is strictly confidential and I undertake not to divulge the information
to anyone other than the project team.

Signed _____

Date _____

DR G J PACK
DR A T LLOYD DAVIES
DR M J MARVAL

ELVIN HOUSE
35 HIGH STREET
ANDOVER, HANTS
Andover 61424

Date as postmark

Dear

You may be aware that in co-operation with Dr Carpenter, the Specialist in Medicine for the Elderly in Andover, we are establishing a scheme in the community to maintain the health of people over 75 years of age.

A volunteer visitor will shortly call on you and ask some questions about simple activities of daily life, such as walking, hearing, sleeping, appetite and so on. A further visit will take place in due course and the same questions will again be asked. If there are any new problems, a Health Visitor or District Nurse will come and see you to discuss them in greater depth. Any information given will be treated with strictest confidence and each visitor will carry a card which you should check with the name at the end of this letter.

One part of the project is the enclosed questionnaire and we would be very grateful if you could answer the questions by ringing the answer "yes" or "no" for each one and return it in the envelope provided.

We hope you will enjoy participating in the scheme which we hope will bring long-term benefits for the older residents of Andover. If you have any questions you would like to ask, please ask the interviewer or telephone Dr Carpenter's office at Winchester 60661, (mornings only).

If you do not wish to take part, we would be most grateful if you could contact the surgery or let the visitor know when she visits.

Yours sincerely

Dr A T Lloyd Davies

Encs

Mrs.....will visit at.....

on

If this is inconvenient please telephone

D A H GAILEY, M J LOCKWOOD, R M MATHESON, P F ACRES & C B E GOVIER

The Adelaide Medical Centre, Adelaide Road, ANDOVER, Hants SP10 1HA
Telephone: Andover 51144

Date as postmark

Dear

You may be aware that in co-operation with Dr Carpenter, the Specialist in Medicine for the Elderly in Andover, we are establishing a scheme in the community to maintain the health of people over 75 years of age.

A volunteer visitor will shortly call on you and ask some questions about simple activities of daily life, such as walking, hearing, sleeping, appetite and so on. A further visit will take place in due course and the same questions will again be asked. If there are any new problems, a Health Visitor or District Nurse will come and see you to discuss them in greater depth. Any information given will be treated with strictest confidence and each visitor will carry a card which you should check with the name at the end of this letter.

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If you do not wish to take part, we would be most grateful if you could contact the surgery or let the visitor know when she visits.

Yours sincerely

Dr D A H Gailey

Encs

-Mrs.....will visit at.....

on 120

If this is inconvenient please telephone

WATCH OVER 75

This early warning scheme for Andover's over 75's aims to find at an early stage old people whose health is beginning to fail. By visiting them regularly and completing at each visit a questionnaire on the activities of daily living, we shall see when a change in their abilities takes place. A change or deterioration in a person's ability to undertake ordinary activities of daily living often indicates a deterioration in health. When this happens action will be taken.

NOTES OF GUIDANCE FOR INTERVIEWERS USING THE WINCHESTER DISABILITY RATING SCALE

1. This questionnaire should record what the elderly person herself says she can do. The information recorded should be as on the day you visit her, even if she regards any incapacity as only temporary.
eg - if she usually goes out independently, but today is unable to because of flu etc, ring either "housebound can manage stairs" or appropriate item.
2. If the elderly person receives help from anyone else or uses any aids for disability (eg - zimmer frame, bath seat, glasses, hearing aid, incontinence pads, sleeping pills etc) the questionnaire should be ringed as with this help.
eg - if the person is totally deaf without a hearing aid, but is only hard of hearing if she uses one, ring "hard of hearing" or ring as appropriate as with the hearing aid.
3. We want to find the extent to which the individual person manages any handicap and copes with her own particular difficulties in her own individual situation. This means that two people with similar handicaps may cope with them quite differently and therefore the questionnaires are likely to have different information recorded on them. We would like to be able to record how the individual person herself feels she is managing.

If you have any difficulties or wish to ask any questions please do not hesitate to get in touch with Dr Carpenter or Mrs Gill Demopoulos on Winchester 60661 (mornings only).

NOTES FOR PARTICULAR QUESTIONS

Question 6 - Dressing

Include here shaving, and brushing or combing hair.

Question 9 - Eating

"Help" refers to eating of a meal but not to its preparation. If a person has meals prepared for her by someone else this will be reflected in question 18.

Question 11 - Toilet

Accidents include both those who have accidents necessitating a change of clothing or bedding and those who leave the toilet so that it needs immediate cleaning.

Question 14 - Health

This item is the old person's view of their health at the present time.

Question 15 - Anxiety and/or Depression and/or Confusion

Please ring the most severe aspect of a person's mental state.

Eg - if she suffers from frequent severe depression and occasional mild confusion rate as Freq Severe.

If she suffers from frequent moderate confusion and occasional mild anxiety underline Freq Moderate.

Question 16 - Companionship

If the old person feels she has all the companionship that she wants ring "Adequate" even if you feel that she has very little companionship.

Question 18 - Carer(s)

Carer(s) may include a relative (spouse, daughter, son etc), neighbour, friend, home help etc.

If spouse is under stress and home help has no difficulty ring "Carer(s) under stress".

Question 19 - Home Conditions

This is the interviewers assessment but should take into account the old person's standards and expectations.

APPENDIX C

Data entry screens for the computer database

ESP.PGMS

ELDERLY SCREENING PROJECT DATA ENTRY
(21 DR. CARPENTER)

30 JUL 1

- 1) DATA ENQUIRIES
- 2) ENTER NEW CLIENTS
- 3) ENTER WDRS QUESTIONNAIRE RESULTS
- 4) ENTER BARBER POSTAL QUESTIONNAIRE RESULTS
- 5) ENTER PATIENT QUESTIONNAIRE RESPONSES
- 6) ENTER HOSPITAL INTERVENTIONS
- 7) ENTER GERIATRIC SERVICE INTERVENTIONS
- 8) ENTER PSYCHOGERIATRIC INTERVENTIONS
- 9) ENTER GP VISITS AND SURGERY ATTENDANCES
- 10) ENTER HEALTH VISITOR AND DISTRICT NURSE INTERVENTIONS
- 11) ENTER SOCIAL SERVICES INTERVENTIONS
- 12) ENTER COMMUNITY PHYSIO AND CHIROPODY INTERVENTIONS
- 13) ENTER SPEECH THERAPY AND AUDIOLOGY INTERVENTIONS
- 14) ENTER BATHING OR OTHER NON SOC. SERV. SOCIAL SUPPORT
- 15) ENTER REASONS FOR LEAVING THE SCREENING PROJECT
- 16) ENTER REASONS FOR REFUSAL TO PARTICIPATE IN THE SCREENING PROJECT
'EX' TO EXIT

SELECT ONE OF THE ABOVE: \\

- 1) WDRS QUESTIONNAIRE RESULTS
- 2) HOSPITAL IP AND OP EVENTS
- 3) LIST OF LAST INTERVIEWS
- 4) CHECK ESP.DATA/ESP.QUES ID'S
- 5) REVIEW ESP.DATA ITEMS
- 6) REVIEW ESP.QUES ITEMS
- 7) LIST OF QUESTIONNAIRE ID'S & SCORES

'EX' TO EXIT
SELECT ONE OF THE ABOVE: \\

ESP. DATA

ELDERLY SCREENING PROJECT CLIENT DATA

30 JUL 1

CLIENT No. 512

This is the item Id.

1) TITLE	MS.		
2) FORENAME	DOROTHY		
3) SURNAME	ROTH		
4) ADDRESS1	XXXXXXXXXXXXXXXXXXXX		
5) ADDRESS2	ANDOVER		
6) ADDRESS3			
7) POSTCODE	SP10 2JL		
8) DOB	25/09/06	14) MOVED TO "PART2"	
9) GP	DR. MARVAL		
10) DIED			
11) MOVED			
12) REFUSED			PSCORE 21
			INT. DATE 09/03/88
13) GROUP	C		

MODIFICATIONS -- ENTER LINE REF (NN) OR "DELETE" :////////

ESP. BARB

E. S. P. BARBER POSTAL QUESTIONNAIRE

30 JUL 1

ITEM Id. 38

1) SURNAME 83 DANIELS

2) AGREE TO PARTICIPATE? Y

3) LIVE ALONE? Y

4) WITHOUT REL. FOR HELP? Y

5) DEPEND ON HELP? Y

6) DAYS WITHOUT HOT MEAL? Y

7) DIFFICULTY KEEPING WARM? Y

8) CONFINED TO HOME? Y

9) CONCERNED ABOUT HEALTH? Y

10) DIFFICULTY WITH VISION? Y

11) DIFFICULTY WITH HEARING? Y

12) DIFFICULTY WITH EATING? X

13) DIFFICULTY PASSING WATER? X

14) DIFFICULTY WITH BOWELS? X

In all questions answer Y for YE
and LEAVE BLANK for NO. If the
question has not been answered
ENTER X.

MODIFICATIONS -- ENTER LINE REF (NN) OR "DELETE" :////////

ESP.RESP.E

ESP.RESPONSE.ENTRY

30 JUL 1

Item ID. 38

1. Surname 23 BASTING

- 2.Enjoyed participating? 1
- 3.The scheme for you? 2
- 4.Reason for opinion? 1
- 5.Frequency of visitng? 3
- 6.Continue to be included? 1
- 7.Do you live alone? 2
- 8.Any comments on scheme? 2

MODIFICATIONS -- ENTER LINE REF (NN) OR "DELETE" :////////

ESP. QUES WINCHESTER DISABILITY RATING SCALE DATA 30 JUL 1

ITEM ID. 1234

30) SURNAME 108 ENGLISH FIRST SCORE 19
PREVIOUS SCORE 35
PREV. INTERVIEW 22/04/88

1) MARITAL STATUS	1 (00)	16) COMPANIONSHIP	4
2) LIVE ON YOUR OWN?	2	17) PRESENT HELP	1
3) HOSPITAL DURING LAST YEAR?	N	18) CARER(S)	3
4) NO. OF FALLS IN PREV. MONTH	3	19) HOME CONDITIONS	1
5) WALKING	2	20) TOTAL SCORE	45
6) DRESSING/UNDRESSING	4	21) INTERVIEWER	M. KNIGHT
7) WASHING	4	22) INTERVIEW DATE	04/02/87
8) BATHING	4	23) TIME TAKEN	25
9) EATING	1		
10) SLEEPING	2		
11) TOILET	1	24) ACTION	LOCKWOOD 29-44
12) HEARING	5	25) CODE	1 Score Change Only
13) SIGHT	1	26) OUTCOME	N.F.A. SEE LETTER
14) HEALTH	6	27) AOC	4
15) ANXIETY/DEPRESS/CONFUSION	3		

MODIFICATIONS -- ENTER LINE REF (NN) OR "DELETE" :////////

ESP.HOSP

HOSPITAL INTERVENTIONS

30 JUL 1

Item Id. 576

30.SURNAME 653 KIMBLE

1. HOSPITAL

RHCH

IN-PATIENT

2. ADMISSION DATE

29/03/87

3. DISCHARGE DATE

03/04/87

4. IN PATIENT DEPT.

P.JACKSON

5. DIAGNOSIS

6. FOLLOW UP

HOME

Enter operations etc
& Follow up details

OUT-PATIENT

7. OUT-PATIENT DATE

8. OUT-PATIENT DEPT.

9. DIAGNOSIS

10. FOLLOW UP

MODIFICATIONS -- ENTER LINE REF (NN) OR "DELETE" :////////

ESP.GER

GERIATRIC INTERVENTIONS

30 JUL 1

Item Id. 123

30. SURNAME 190 LANGDOWN

DOMICILIARY VISIT

- 1. DV DATE
- 2. DV DIAGNOSIS
- 3. DV FOLLOW UP

- ALL actions initiate

DAY HOSPITAL

- 4. DH ADMISSION
- 5. DH DISCHARGE
- 6. DH DIAGNOSIS
- 7. DH FOLLOW UP

01/03/88
22/03/88

- ALL actions initiate

MODIFICATIONS -- ENTER LINE REF (NN) OR "DELETE" :////////

ESP.PSYCHOGER

PSYCHOGERIATRIC INTERVENTIONS

30 JUL 1

Item Id. 19

30. SURNAME 491 WATSON

PSYCHOGERIATRIC DOMICILIARY VISIT

- 1. DV DATE
- 2. DV DIAGNOSIS
- 3. DV FOLLOW UP

- ALL actions initia

PSYCHOGERIATRIC DAY HOSPITAL

- 4. DH ADMISSION
- 5. DH DISCHARGE
- 6. DH DIAGNOSIS
- 7. DH FOLLOW UP

- ALL actions initia

C.P.N.S.

- 8. C.P.N.S. DATE
- 9. C.P.N.S. ACTION

- ALL actions initia

MODIFICATIONS -- ENTER LINE REF (NN) OR "DELETE" :////////

ESP.GP

GP INTERVENTIONS

30 JUL 1

Item Id. 287

30. SURNAME 304 TANNER

GP VISITS

1. VISIT DATE

21/08/85

2. DIAGNOSIS

3. ACTION

SURGERY ATTENDANCES

4. DATE

5. DIAGNOSIS

6. ACTION

7. FOLLOW UP

ACTION should include a brief description of all action initiated.

FOLLOW UP should include a brief description of follow up

arrangements and the number of follow up attendances at the surgery for that particular problem.

MODIFICATIONS -- ENTER LINE REF (NN) OR "DELETE" :\\\\\\\\\\\\\\\\

ESP.HV HEALTH VISITOR & DISTRICT NURSE INTERVENTIONS 30 JUL 1

Item Id. 987 30. SURNAME 712 TITCHENER

HEALTH VISITOR

- 1. VISIT DATE
- 2. DIAGNOSIS
- 3. ACTION
- 4. FOLLOW UP

DISTRICT NURSE

5. CONTACT DATE 15/05/86
 6. CONTACT PLACE SURGERY GP's surgery or patient's home
 7. DIAGNOSIS
 8. ACTION
 9. FOLLOW UP

ACTION should include a brief description of all action initiated.

FOLLOW UP should include actions and number of reattendances/visits.
MODIFICATIONS -- ENTER LINE REF (NN) OR "DELETE" :////////

ESP.SS

SOCIAL SERVICES INTERVENTIONS

XXXXXXXXXX

Item Id.

30. SURNAME

- 1. MEALS ON WHEELS
- 2. FREQUENCY
- 3. HOME HELP
- 4. FREQUENCY
- 5. DAY CENTRE
- 6. FREQUENCY
- 7. LUNCHEON CLUB
- 8. FREQUENCY
- 9. COMMUNITY O.T.
- 10. ACTION
- 11. OTHER
- 12. ACTION

For all these, first enter the date as dd/mm/yy. The frequency is the number of times per week, and should be entered as a single number.

For ACTION in 10 and 12, enter the reason for the action and the action taken as briefly as possible.

- 13. AID
- 14. SOURCE
- 15. DATE

Item Id. OR "EX" : \\\

ESP.PHYS

COMMUNITY PHYSIO & CHIROPODY INTERVENTIONS

30 JUL 1

Item Id.

30. SURNAME

COMMUNITY PHYSIOTHERAPIST

1. DATE

2. DIAGNOSIS

3. ACTION

CHIROPODY

4. DATE

5. PLACE

6. ACTION

= where seen by the chiroprapist

Item Id. OR "EX" :////

ESP.SUP

SOCIAL SUPPORT & BATHING INTERVENTION

30 JUL 1

Item Id.

30. SURNAME

SOCIAL SUPPORT

1. DATE

2. DESCRIPTION

BATHING

3. DATE

4. PLACE

5. FREQUENCY

6. DESCRIPTION

DESCRIPTION should state the type of support or bathing assistance and by whom it is done.

Item Id. OR "EX" :\\\\\\

ESP.EVENT

REASONS FOR LEAVING PROJECT

30 JUL 1

Item Id. 13

30. SURNAME 340 WILLIAMS

DEATH

1. DATE 03/11/85
 2. PLACE RHCH
 3. CAUSE A.R.F.

MOVED

4. DATE
 5. WHERE TO

OTHER REASONS

6. DATE
 7. DESCRIPTION

MODIFICATIONS -- ENTER LINE REF (NN) OR "DELETE" :////////

ESP.REF REASON FOR REFUSAL TO PARTICIPATE IN SCREENING PROJECT XXXXXXXX

ID.

1) SURNAME

2) ALLOWED INTO HOUSE

3) INTERVIEW COMPLETED

4) REASON

ID. OR "EX" ://////////

APPENDIX D

Standard letters to general practitioners

ELDERLY SCREENING PROJECT

Department of Geriatric Medicine
St. Paul's Hospital,
Winchester,
Hants.
SO22 5AA



WINCHESTER
HEALTH
AUTHORITY

Telephone:
Winchester 60661 ext. 28

Dr. G.I. Carpenter Consultant Geriatrician
Mrs. G. R. Demopoulos Research Assistant

Dear Dr

Mr _____ of _____
has recently been interviewed by one of our visitors and a change
of score from _____ to _____ has been noted. In addition the
interviewer notes that _____

Would it be possible for someone to visit to check whether or not
any further help is needed? We would be very grateful if you
could let us know the outcome of the visit.

Yours sincerely

G I Carpenter MRCP
Consultant Physician in Geriatric Medicine

ELDERLY SCREENING PROJECT

Department of Geriatric Medicine
St. Paul's Hospital,
Winchester,
Hants.
SO22 5AA



WINCHESTER
HEALTH
AUTHORITY

Telephone:
Winchester 60661 ext. 28

Dr. G.I. Carpenter Consultant Geriatrician
Mrs. G. R. Demopoulos Research Assistant

Dear Dr

At a recent interview with one of our interviewers Mrs _____
of _____ said that she would find
it very helpful to have a _____.

I would be very grateful therefore if you could agree to this
request and pass this letter to the Red Cross for the attention
of Mrs I Colebrook.

Yours sincerely

G I Carpenter MRCP
Consultant Physician in Geriatric Medicine

22/04/86 11:57 To:60019 A/BACK:096260019 From:0962 63078 PAGE 1

al Destinations :60019

-----EEEE-----

DERLY SCREENING PROJECT FORM Ref ELDP 2

-----EEEE-----

RESSED TO 60019 PK E SP Y UGC WHA

-----EEEE-----

ERLY SCREENING PROJECT

Dr.

of

recently been interviewed by one of our visitors and a change of score to has been noted. In addition interviewer notes that

and it be possible, therefore, as agreed in the project protocol, for one to investigate whether or not any further help is needed? We would be very grateful if you could let us know the outcome of your opinion.

G.I. Carpenter

(END OF DOCUMENT)

3 22/04/86 11:58 To:60019 A/BACK:096260019 From:0962 63078 PAGE 1

al Destinations :60019

-----EEEE-----

DERLY SCREENING PROJECT FORM Ref ELDP 1

-----EEEE-----

RESSED TO 60019 PK E SP Y UGC WHA

-----EEEE-----

ERLY SCREENING PROJECT

Dr.

recent interview with one our interviewers Mrs.

that she would find it very helpful to have a

would be very grateful, therefore if you could agree to this request and this Form to the Red Cross for the attention of Mrs. I. Colebrook.

G.I. Carpenter

(END OF DOCUMENT)

APPENDIX E

**Letter sent to the study group, Acceptability Questionnaire
and letter sent to the control group prior to final interview.**

DR.G.J.PACK
DR.A.T.LLOYD DAVIES
DR.J.MARVAL
DR.A.WALKER

ELVIN HOUSE
35 HIGH STREET
ANDOVER
ANDOVER 61424

Date as postmark.

Dear

WATCH OVER 75

As you know, the Watch Over 75 scheme has been running for nearly three years and as we are now beginning to think about the future of the project we would like to know what you think about it. We would therefore be very grateful if you could answer the questions on the attached sheet and return it in the enclosed stamped addressed envelope.

On the occasion of the next Watch Over 75 visit, we are sorry that your usual visitor will not be calling. This is because during the next few months we want to see how successful this experimental project has been, and in order to help us in this respect we would like each person to be visited by someone other than their usual visitor. Mr , who is also a visitor on the Watch Over 75 scheme will come to see you. He/She will call at on

If this is not convenient ,please telephone him/her on

Yours sincerely,

Dr D.A.H.Gailey.

WATCH OVER 75

PATIENT QUESTIONNAIRE

Please TICK one answer to each question.

1) Have you enjoyed participating in the scheme?

YES
NO

2) What do you think of the visiting scheme for yourself?

WASTE OF TIME
BENEFICIAL
HAVE NO SPECIAL OPINION

3) If you think the scheme is either a waste of time or that it is beneficial, could you please tell us why you think this?

4) What do you think of the frequency of visiting?

TOO FREQUENT
TOO SELDOM
ABOUT RIGHT

5) If the scheme continues, would you still like to be included in the scheme?

YES
NO
DON'T KNOW

6) Do you live alone?

YES
NO
ALONE BUT IN WARDEN
SUPERVISED DWELLING

7) Have you any other comments about the scheme?

PLEASE RETURN THIS QUESTIONNAIRE TO THE SURGERY
IN THE STAMPED ADDRESSED ENVELOPE PROVIDED.

THANK YOU VERY MUCH FOR YOUR HELP

DRS D.A.H.GAILEY, M.J.LOCKWOOD, R.M.MATHESON,
P.F.ACRES & J.M.HARRIES

The Adelaide Medical Centre, Adelaide Rd, Andover, Hants SP10 1HA

Date as postmark.

Dear

I expect you will remember that in the spring of 1985 we wrote to you about a scheme for visiting elderly people living at home. This letter was followed by a visit from a volunteer visitor who asked you some questions about activities of daily life, such as walking, sleeping, hearing, appetite and so on.

We are now re-visiting everyone and would be very grateful if you could answer similar questions again. Mrs a voluntary visitor on the Watch Over 75 scheme will call to see you at on .
If this is not convenient please telephone her/him on

As before, if you prefer not to take part we would be grateful if you would tell the visitor or if you could let the surgery know.

Yours sincerely,

Dr D.A.H.Gailey.

APPENDIX F

Published papers

The use of a disability rating questionnaire in a case-controlled screening surveillance programme

*Dr G. I. Carpenter BSc, MRCP
Consultant in Geriatric Medicine, St Pauls Hospital, Winchester*

*G. D. Demopoulos BSc
Research Assistant, Winchester*

THE objectives of the project, which began in 1984, are twofold:

1. To develop a cheaply and easily administered instrument which is a sensitive indicator of any deterioration in the health of elderly persons in the community
2. To test whether surveillance and early intervention will have any impact on the health of the elderly community.

The Winchester Disability Rating Scale, a validated questionnaire with 19 questions of which 16 are used to generate a score, forms the basis of the screening programme (Table 1). It is administered by volunteers enlisted from the local community.

The study population was sorted by age and sex then randomly allocated to experimental and control groups. Volunteers visited the whole population at the commencement of the study, and members of the experimental group at regular intervals thereafter. The questionnaires are returned to the research assistant who enters the data into the computer where the score is computed and displayed. If there is a change in score indicating deterioration, a referral is made to the general practitioner, who initiates further action. Client requests for aids or services are also normally routed through the general practitioner. All interventions are recorded.

At the end of the study, the whole study population will be questioned once more and the results analysed to identify any significant difference in patterns of disability, score, and use of resources between the two groups.

The target population

Two general practices in Andover agreed to take part in the study. Compiling a list of all people over 75 who lived in the town was complex and time consuming since the records were poorly organized and sometimes out of date with regard to deaths and changes of address.

It was considered important that interviewers should not be asked to visit someone unless the address had been checked. Information was therefore sought from the Registrar of Births, Marriages and Deaths for deaths, and from the Housing Department for changes of address. In spite of this, interviewers found some wrong addresses on visiting. In some cases they were able to discover the whereabouts of the person; in others, the whereabouts remained unknown. The age/sex register of patients from one practice was completed only as the last of the first interviews were completed.

The initial record check produced 699 patients. Of these, 97 had to be excluded (32 had died, 39 had moved into residential care or out of the area, and 26 could not be traced). This left 602 who were potentially traceable. Of these, 63 refused to take part in the study leaving questionnaires to be completed on 539.

The volunteers

An initial publicity meeting to which all local charities and voluntary groups were invited produced only a few volunteers. On reflection it was felt that the most likely people for this sort of work would be the unemployed, mothers with preschool-age children, and the retired. Recruiting therefore took a different course with the research assistant visiting personally a number of community groups, in particular 'mothers and toddlers' and church groups.

Thirty-six volunteers were successfully recruited and 60-minute training sessions were held for groups of up to 15 at a time.

Interviewing began in February 1985. All the interviewers have enjoyed the work and only five have dropped out to date. The old people also enjoy the visits, and positive feedback has been received from a very wide variety of sources.

The questionnaire

The questionnaire covers a number of descriptive factors including information on recent hospital admission, recent falls, and activities of daily living (ADL) (Table 1).

The time taken to administer the questionnaire is usually about 20 minutes: of all interviews to date, 40 per cent have been completed in under 15 minutes, 38 per cent in 16-30 minutes, 11 per cent in 31-45 minutes and 11 per cent have taken over 45 minutes.

Risk groups and surveillance

When all first interviews had been entered into the computer, the author and research assistant each reviewed 100 questionnaires and divided them into three 'risk' groups: those with no significant disability (score 15-20), those with some disability but whose lives were not significantly impaired (score 21-32), and those with

considerable disability (score ≥ 33). Group 1 contained 317 cases (59 per cent), Group 2 contained 187 cases (35 per cent), and Group 3 contained 35 cases (6 per cent).

Experimental group members are now being visited on a regular basis: those in Group 1 on a 6-monthly cycle, those in Group 2 on a 3-monthly cycle. Those in Group 3 already receive a great deal of assistance and are well known to the primary health care teams and social services department. Some do not need visiting because of the high level of support they already receive, but the majority are visited 3-monthly.

Where a change in score of 5 or more is recorded in a subsequent interview a letter is sent to the general practitioner stating the score change and any principal finding. He will then review the case and initiate further action as necessary.

Discussion

The project has already proved to be a practical and effective way of collecting data on large numbers of elderly people living in their own homes at low cost.

No insurmountable difficulties have been encountered. Initial delay in interviewing was due to difficulties in compiling an accurate list of patients and establishing an effective interviewing pattern. The project should move smoothly through its course to completion in 1987/8. We do not expect to be able to evaluate the project before the end of the research period. However, it is already becoming apparent that it is likely to be in non-medical areas that the project is going to show a value for screening: there have been numerous requests for non-medical help.

Table 1. Winchester Disability Rating Scale

1.	MARITAL STATUS	Married	Divorced/Separated	Single	Widowed	Date:
2.	WHO DO YOU LIVE WITH?	Alone	Spouse	Son/Daughter	Other	
3.	HOSPITAL DURING THE LAST YEAR?		Yes	No		
4.	HOW MANY FALLS WITHIN THE LAST MONTH?					
5.	WALKING	Goes out independently	Housebound can manage stairs	Housebound cannot manage stairs	Roomfast	Chairfast or bedfast
6.	DRESSING/UNDRESSING	Independent	Some difficulty	Manages with much difficulty	Manages with help	Cannot dress
7.	WASHING	Independent	Some difficulty	Manages with much difficulty	Manages with help	Cannot wash
8.	BATHING	Independent	Some difficulty	Manages with much difficulty	Manages with help	Cannot bath
9.	EATING	Normal	Limited diet	Liquids only	Manages with help	Eats hardly anything
10.	SLEEPING	Good nights	Interrupted nights	Little sleep at night	Awake at night asleep by day	Never asleep or always asleep
11.	TOILET	Independent	Commode at night	Commode day and night	Occasional accidents	Frequent accidents
12.	HEARING (with aid if worn)	Satisfactory	Slight impairment of hearing	Hard of hearing can lip read	Hard of hearing cannot lip read	Totally deaf
13.	SIGHT (with glasses if worn)	Satisfactory	Cannot read	Cannot watch television	Can hardly see	Blind
14.	HEALTH	Good	Good on the whole	Moderate	Poor	Very poor
15.	ANXIETY and/or DEPRESSION and/or CONFUSION	Normal	Occasional slight	Occasional moderate	Frequent moderate	Frequent severe
16.	COMPANIONSHIP	Good	Adequate	Little	Very little	None
17.	PRESENT HELP	None required	Some needed and provided	Much needed and provided	More required	Much more required
18.	CARER(s)	None required	Carer(s) have no problems	Carer(s) have some difficulty	Carer(s) under stress	Carer(s) cannot continue
19.	HOME CONDITIONS	Good	Adequate	Untidy or hazardous	Bad	Very bad

Scoring is from 1-5 for each response from questions 4-19. Questions 14 and 18 are weighted to give added importance to the higher scoring responses.

Screening the elderly in the community: controlled trial of dependency surveillance using a questionnaire administered by volunteers

G I Carpenter, G R Demopoulos

Abstract

Objective—To test the benefits of regular surveillance of the elderly at home using an activities of daily living questionnaire administered by volunteers.

Design—Randomised controlled study.

Patients—539 Subjects aged 75 and over from two general practices.

Intervention—All subjects were visited at the beginning and end of the study by volunteers, who completed a scored activity of daily living questionnaire. The study group were revisited at regular intervals. Individuals with an increase in score >5 were referred to their general practitioners. All interactions with social services and health authorities were recorded for both groups.

Main outcome measures—Mortality, activity of daily living score, total number of days in institutions, geriatric and psychogeriatric service contacts, primary health care team contacts, use of community support services.

Results—The study group were admitted to hospital more often than the controls (335 occasions v 252), but the control group spent 33% more days in institutions, mainly in long term admissions to residential accommodation. The number of falls reported in the control group doubled (from 17 before the first interview to 36 before the last) and in the study group remained unchanged (12 before both interviews). The study group received community support services sooner than the control group. There was no difference between the groups in mortality or activity of daily living score.

Conclusion—Regular visiting of old people at home by non-professional volunteers using a simple activity of daily living questionnaire is a practical way of identifying problems and initiating action for this group.

Introduction

Screening the elderly in the community is a subject that has attracted interest and then lost it as projects have failed to show clear benefits attainable at reasonable cost in time and effort.¹ This project investigated the value of surveillance of activities of daily living as a method of maintaining health of the elderly at home.

Methods

The project was a three year prospective randomised controlled study of the effects of dependency surveillance using an activity of daily living questionnaire administered by unskilled volunteers recruited for the project.

A letter of introduction was sent by the general

practitioner to all those included in the study. Volunteers visited subjects and completed activity of daily living questionnaires and returned them to one of the authors (GRD). The whole group was visited at the start and end of the project. After the first interviews a list of men and a list of women were prepared, sorted by age. The women were then allocated to a study or control group using random number tables, and their husbands were allocated to the same group. The remaining men were then allocated using random number tables. The study group was revisited at regular intervals. All results were entered into a computer.

Scores derived from the questionnaire completed on subsequent visits were compared with previous scores. Individuals found to have an increase in score of five or more points were referred to their general practitioners for further action as required. Those with specific requests—for example, bath seats—were referred to the relevant agency via the general practice. All referrals were recorded.

THE POPULATION

Two general practices in Andover agreed to take part in the study. The population was composed of those aged 75 years or more at the start of the project who were living in Andover town, including the surrounding housing estates but excluding the villages. The initial list from the family practitioner committee produced 699 patients. Investigation showed that 602 were potentially traceable, 32 had died, 21 had moved into residential care, 18 had moved out of the area, and 26 could not be traced.

Fifty nine people (11 men and 40 women aged 75-84 and 3 men and 5 women aged ≥ 85) from the final list of 602 refused to take part in the study and four were never at home in spite of frequent attempts to contact them, giving a project population of 539. Of these, 467 were aged 75-84 (165 men, 302 women) and 72 were aged ≥ 85 (23 men, 49 women). There was no significant difference between the two groups in marital state, type of home, or household composition.

The instrument used was the Winchester disability rating scale. It was developed for the project and was a scored questionnaire of 18 items covering reported (as opposed to observed) activities of daily living, including items on, for example, carers, home conditions, and companionship. Copies, with results of reliability and validity tests, are available from the authors.

VOLUNTEER INTERVIEWS

Recruitment of volunteers was most successful through mother and toddler groups and church groups. Recruitment from recognised charities and voluntary bodies was less successful.

Thirty eight volunteers were recruited initially, and

Paul's Hospital,
Winchester, Hants
SO22 5AA

G I Carpenter, MRCP,
Consultant geriatrician
G R Demopoulos, BSC,
Research assistant

Correspondence to:
G I Carpenter.

Med J 1990;300:1253-6

a further three joined during the project. Six of the volunteers were sixth form students on a one year course; in addition to these six, 11 others withdrew (two for health reasons, one, because she felt unsuited, and eight because they moved from the area or for other reasons). They received a one hour training session when the principles and aims of the project were explained and they were introduced to the questionnaire. Regular four monthly meetings were held to maintain interest and exchange information.

INTERVIEW PATTERN

When the results of all first interviews had been entered into the computer the authors each reviewed 100 questionnaires, divided them into three disability groups and compared results. The score ranges that each had defined were identical except for a very few cases and were therefore adopted. The three groups identified were those with no significant disability (score 15-20), those with some disability but whose life was not significantly impaired (score 21-32), and those with considerable disability (score >33). Table I shows the distribution of disability scores in the two groups.

TABLE I—Distribution of disability scores in study and control groups

Disability group (and score)	Study group	Control group	Total
No disability (15-20)	160	157	317
Some disability (21-33)	98	89	187
Considerable disability (>33)	14	21	35
Total	272	267	539

For those with no disability volunteers visited every six months and for those with some disability or severe disability every three months.

RESULTS

The data presented represent a small proportion of the information collected. All data refer to the total population, not just those completing the project.

The first round of interviews took three months to complete. The total duration of the project from the first to the last interview was therefore 39 months.

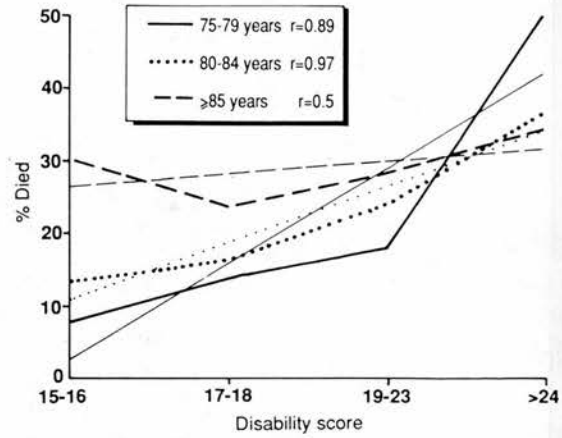
A total of 1949 questionnaires were completed during the project; 39% were completed in 1-15 minutes, 38% in 16-30 minutes, 12% in 31-45 minutes, and 11% in over 45 minutes.

Ninety four people received interventions initiated as a result of the project, 37 receiving more than one intervention. Thirty nine people received an intervention because of a change in their disability score (10 of them more than once), 15 because of a request for an aid or service (1 of them more than once), 18 because of both a change in score and a request for an aid or service (14 of them more than once), and 22 for another reason, including referrals to the housing department or provision of advice (11 of them more than once). Problems identified were mainly non-medical. In 14 cases treatment had already been started and in 17 there was "no treatment available."

SURVIVORS AND MORTALITY

Of the 539 subjects who started the project, 367 (68%) completed a final questionnaire, 181 (66%) of the study group and 186 (69%) of the control group. One hundred and twenty people died (66 of the study group and 54 of the controls); 25 people withdrew from the project (14 study group and 11 controls); 22 moved out of the area, (11 study group and 11 controls); 2 changed doctor to a different practice; and 3 moved into long term nursing care.

Mortality in the two groups was not significantly different. Mortality was closely related to an increased dependency score in the 75-80 year olds and 80-84 year olds, but this relation was much weaker in the over 85s (figure).



Correlation of mortality with disability score quartile of the Winchester disability rating scale by age group (bold lines). Regression lines are also shown (feint lines)

CHANGE IN ACTIVITIES OF DAILY LIVING SCORE

The mean disability score for the whole population at the start of the project was 20.9. For those completing the project there were significant increases in the mean (SD) disability score in both groups (two tailed paired samples *t* test $p < 0.01$): the score in the study group rose from 19.7 (4.7) to 22.3 (6.9) and in the control group from 20.2 (5.6) to 23.1 (7.9). The difference between the groups was not significant.

In the control group 36 falls were reported in the month before the final interview compared with 17 in the month before the first interview (analysis of variance, $p < 0.001$). In the study group there was no increase in falls, with 12 recorded at both initial and final interviews (analysis of variance between groups $p = 0.1$ at initial interview, $p < 0.05$ at final interview).

ADMISSIONS TO INSTITUTIONS

One hundred and twenty one people in the study group and 107 controls had a total of 587 admissions (table II). The total number of days spent in institutions was 33% higher in the control group (16088 days \pm 12079) days. There was a significant difference in the number of people admitted for more than six months (study group 8, control group 20, $\chi^2 = 4.78$, $p = 0.03$).

TABLE II—Admissions to institutions, mean length of stay, and total length of stay in study and control groups

	No of admissions (No of individuals)*		Mean (SD) length of stay		Admissions lasting >6 months		Total days in institutions	
	Study	Control	Study	Control	Study	Control	Study	Control
District general hospital	144 (92)	98 (66)	15.9 (18.5)†	11.7 (11.0)†	0	0	2266	1148
Community hospital	107 (61)	68 (52)	18.2 (23.4)	18.1 (24.2)	0	0	1933	1238
Geriatric hospital	37 (16)	15 (12)	53.9 (104.1)	108.6 (191.5)	2	2	1992	1623
Psychogeriatric hospital	17 (11)	21 (11)	124.7 (225.5)	176.2 (286.9)	2	5	2121	3700
Residential accommodation	30 (18)	50 (25)	125.3 (200.3)	168.3 (286.8)	4	14	3752	8394
Total	335 (121)	252 (107)	36.1 (105)	63.8 (171)	8	21	12064	16103

*Some individuals were admitted to more than one type of accommodation.

†Two tailed *t* test, $p < 0.05$.

Only one person (from the control group) had two admissions lasting more than six months (table II). The pattern of admissions to district general, community, geriatric, and psychogeriatric hospitals and residential accommodation (rest homes and part III accommodation) was significantly different between the groups (table III).

TABLE III—Actual and expected* numbers of admissions to institutions in study and control groups

	Study group		Control group	
	Actual	Expected	Actual	Expected
District general hospital	144	138	98	104
Community hospital	107	100	68	75
Geriatric hospital	37	30	15	22
Psychogeriatric hospital	17	22	21	16
Residential accommodation	30	46	50	34
Total admissions	335		252	

$\chi^2=20.85$; $df=4$; $p<0.001$.

*Expected number of admissions if the admission patterns of the two groups were statistically independent.

DOMICILIARY VISITS, DAY HOSPITAL REFERRALS, SUPPORT SERVICES

There was no significant difference in the rate of referral for domiciliary visits from the geriatric or psychogeriatric services (41 and 32 respectively). Neither was there any difference in the rate of referral to the psychogeriatric day hospital (total 12) or for the community psychiatric nursing service (total 13). There were more referrals to the geriatric day hospital in the study group (29 v 14, χ^2 , $p<0.05$).

The study group had more referrals for meals on wheels, (23 v 12, χ^2 , $p=0.06$), home helps (29 v 23), and aids to daily living (144 v 118). The type and number of aids provided are shown in table IV. There were few referrals for day centre attendance (20) or for the social services occupational therapist (12).

The pattern of referral for community support services was very different between the two groups in that the referrals were made sooner for those in the study group. The rate of provision to the study group began to exceed that of the control group by the ninth month of the project and continued to exceed it for the following year. During the final year referral rates for aids and services were higher for the control group.

PRIMARY HEALTH CARE TEAM CONTACTS

There were 2348 contacts with general practitioners and 264 new referrals to district nurses. There was no significant difference between the groups. Because of staff changes at one of the practices and difficulties in data collection at the other the data were incomplete for the final 15 months of the project. No period analysis could therefore be carried out on these data.

ACCEPTABILITY AND COSTS

All the interviewers were enthusiastic about the scheme, as were the vast majority of the old people. One hundred and fifty eight of the 180 people remaining in the study group at the end of the project completed a questionnaire asking their opinion of the scheme. Of these, 142 said they wished to continue with the scheme and made many comments such as, "Someone cares," "Someone to call on," "Makes you feel you're not forgotten." Four people were confused about the purpose of the scheme and 13 felt it a waste of time or inappropriate to their needs.

The running costs of the project were low. The only expenses incurred were the costs of printing the questionnaires, salary, and travel expenses for the half time research assistant and purchase of statistical software for the data analysis. The volunteers incurred virtually no costs.

Discussion

This small scale project has shown that regular visiting of old people at home by non-professional volunteers completing a simple activity of daily living questionnaire is inexpensive, practical, and has an impact on the population visited. The group not visited regularly spent 33% more days in institutions, most of these in long term admissions to residential accommodation. The group that was visited regularly received community support services sooner and reported no increased incidence of falls at the end of the project. Admissions in the study group were more likely to be to hospitals than were admissions in the control group.

Our method of using volunteers and questionnaires provided a low cost way of recording disability in the community and showed a positive correlation of mortality with increased disability that weakens with increasing age.

The differences between the two groups probably arose as a result of three factors. Firstly, the interviewers provided information about services and aids to daily living, particularly as they became more familiar with available services and aids.

Secondly, those being interviewed may have developed an increased awareness of the remediability of their disability. As they were being asked about abilities in activities of daily living they might have realised that increasing difficulties were potentially remediable rather than irreversible effects of old age, the control group perhaps being resigned to "go into a home" to resolve the problems.

Thirdly, the study group had increased contact with the health services as a result of interventions initiated by the project. Problems identified may have been managed using a geriatric-medical model rather than a social service model.

Previous case-control studies of screening assessment and intervention have shown fewer days in hospital and nursing homes and reduced mortality in the study groups³ but little impact on health state.⁴ Vetter *et al* showed reduced mortality, increased service provision, and improved health in an urban community but not in a rural community in a study of regular visiting by health visitors.⁵

Barber and Wallis found that the workload of the primary health care team members rose during the intervention phase and then fell to below the pre-intervention level in a geriatric screening and assessment programme.⁶ This effect is supported by the findings of our project in relation to the use of community support services, although the numbers were too small to show an effect in the use of institution based services. Unfortunately the data on use of primary health care services were incomplete.

The project was run in close contact with the general practices but was the responsibility of the geriatric service. A similar programme could be run from a general practice and would be particularly relevant in the light of the new contract's requirement for general practitioners to visit patients aged over 75 at least once a year.

Regular visiting is most likely to continue when it is structured, both in frequency and in content. The use of a questionnaire such as the Winchester disability rating scale, which is quickly completed, gives a reason for and structure to the visit and ensures that relevant matters are consistently covered. It also gives useful information on dependency and disability in the community for planning purposes. The fact that few medical problems were identified by the project reflects the now widely accepted belief that many of the problems associated with living at home in old age may be remedied by non-medical interventions. The medical problems are generally known and under treatment.⁶

TABLE IV—Number and type of aids provided in study and control groups

Type of aid	Study group	Control group
Bed	7	7
Wheelchair	9	12
Other chair	9	3
Toilet aid	13	18
Commode	17	15
Aid for self care	14	14
Bath aid	41	22
Walking aid	26	23
Other	8	6

The next phase of work is to expand the programme across the health district and into sheltered housing. A research programme over five years will include a detailed evaluation of the economic and quality of life implications.

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