

COMMENTARY

Clinical and research challenges of intermediate care

The concept of intermediate care

Health care systems of today did not evolve to provide optimum care to an ageing population. The philosophies that shaped the United Kingdom's (UK's) response to disease drew on the perceived health care needs in the 19th and early 20th century, and were crystallised in the formation of the UK National Health Service (NHS) in the mid-20th century. In those days, life was relatively brutish and often quite short, illness was acute, severe and potentially life threatening. The health care needs of older patients with age related multiple pathology and functional disability were unlikely to be met, and these patients were at risk of institutionalisation [1]. In the NHS of today, the frequent acute illnesses that accompany the medical conditions of older people often involve admission to hospital. Unfortunately, acute general hospitals may not be well equipped to provide for the complex medical, functional and social assessment and care needs of this vulnerable group. Older patients are at high risk of hospital-acquired deterioration through decompensation, infection, iatrogenesis or neglect. While the system fails them, they are stigmatised as being inappropriate users of acute hospital beds (bed blockers) [2] as they play havoc with the length of stay figures [3].

The literature provides some guidance on models of care which are beneficial in the assessment and management of this vulnerable patient group, the so-called 'frail elderly'. Randomised control trials and meta-analyses have shown that older people benefit from comprehensive, multidisciplinary assessment and a holistic and rehabilitative approach to health care delivery [4, 5]. Much of this is hospital-based, yet paradoxically they may prefer to receive their health care at or near to home [6].

Alternatives to acute hospital care may or may not be viable for acutely or sub acutely ill older people, and are being developed and introduced in the UK. This is one of the most important changes to the provision of health services to older people in recent years. It has prompted much debate. A reading of 'Alternatives to hospital care', a recent supplement to *Age and Ageing* [7], shows that these changes have been met so far with a qualified and constructive welcome. Most of these

alternatives aim to avoid admission to hospital, support discharge from hospital or provide novel models of community care. They are not acute hospital care, nor are they primary care. They bridge acute and primary care and are collectively known as Intermediate Care. The UK government has grasped this concept with enthusiasm and written it into its National Plan and the recent National Service Framework for older peoples' services. This national programme has placed those responsible for the implementation of Intermediate Care at a frontier beyond the comfort zone provided by the evidence base, with researchers playing a game of 'catch up and evaluate' in their wake.

The introduction of Intermediate Care into the UK therefore represents a challenge to both the clinical and academic communities. The clinical challenge is to provide individualised, patient-centred care at or near to the patient's home, which ensures timely and appropriate access to acute, rehabilitative and long-term care and uses a whole-systems approach. The academic challenges include providing comprehensive and up to date guidance from the evidence base and developing new methods to evaluate complex systems.

Clinical challenges

A summary of the challenges to clinicians, managers and commissioners of Intermediate Care services is shown in Table 1. The extent to which clinical activities (such as day surgery and specialist clinics), and technological support (such as radiology services) can be accommodated in the NHS, as it exists today offers opportunities for radical thinking. For example, resources such as day hospitals, community hospitals and nursing homes could be re-defined as centres for planning, providing and co-ordinating care.

As Intermediate Care services develop, existing staff (including geriatricians, nurses, general practitioners, professions allied to medicine and social services staff) will need to change. Some will refine their skills in the assessment and management of frail older people. All will have the opportunity to re-cast professional structures to break down institutional and professional barriers so that they can develop co-ordinated, multidisciplinary community-based teams. Such changes raise a number

Table I. Clinical and organizational challenges in Intermediate Care

The infrastructure of care	
Setting	Wide range of settings Local needs Technological support Clinical activity Role of day hospital Role of community hospitals and nursing homes
Staffing	Specialist skills Professional sensitivities over roles and responsibilities Barriers between traditional service models Integration of community-based teams Career pathways
Resources	Staff shortages and recruitment Availability of 'new' money Training, education and research
Commissioning	Cuts across traditional boundaries Integration of older people as partners
Monitoring	Relationship of service development processes to research evidence Methodology of monitoring quality of care Development of national standards and benchmarking
The processes of care	
Patient-centred care	Focus on needs of older people Patients as expert in their own care Sensitivity of assessment methods Accommodating the expressed wishes of older people Holistic approaches Potentially threatening to established clinical dogmas
Assessment	Comprehensive geriatric assessment Re-enablement Extending beyond professional goals

of questions in terms of resources. Where will the staff come from to provide specialist nurses, general practitioners and community-oriented geriatricians? How will their needs for training and professional development be met? Will new money be available, or will resources be juggled between primary, secondary and social care? Will the National Service Framework for Older People raise the profile of health care of older people and enhance recruitment?

The commissioning of Intermediate Care cuts across acute and community NHS Trusts, primary care structures and the Social Services. In the past, the development of 'seamless' services across institutional boundaries has not been encouraging. It is hoped that joint commissioning of services by the Health and Social Services, and the developing concept of Care Trusts [8], may encourage whole system approaches to service provision. However these concepts are new and evidence that they are sufficient to achieve this Holy Grail is scant.

There is no guarantee that these UK policy initiatives, which are intended to improve the lot of older people, will not achieve the opposite. To try to avoid the failure

of this policy, at the very least, it is necessary to build effective methods for monitoring the quality of care into service development. They could use the National Sentinel audit for stroke care as an example [9], which has been helpful in developing local standards [10] and for making national comparisons of care [11]. But more than this is needed. A programme of research is needed to evaluate the impact of the introduction of Intermediate Care, and to provide useful information to guide its future development.

Using and extending the evidence base

Rigorous evaluation of services is a time consuming process. It takes time for services to mature, and time to plan, perform and analyse research projects. It is not surprising that the evidence base for intermediate services is not conclusive.

The two most powerful research methodologies in health care today are the randomized control trial and the systematic review of research literature. The strengths of the randomized controlled trial are well known, but so too have its shortcomings been appreciated, particularly with respect to health services research [12]. Generalisability may be limited because the study sample may not be representative of the real life populations in which the intervention under test will be applied. For example, the long-standing conundrum of comparing day hospital, in-patient and community-based rehabilitation has three problems. Firstly it is difficult to undertake a study of adequate size to achieve sufficient power to detect meaningful difference in outcome. Secondly, consent and approval for randomisation is not easy or uniformly desirable to negotiate in the presence of powerful service drivers and individual preference. Thirdly, variation in skill mix, staffing levels and many other confounders may mean that it is difficult to interpret negative or positive trials. The same problems face the evaluators of newer services developing as part of Intermediate Care.

Existing information is difficult to deal with using the systematic review process. Some reviewers include non-randomized controlled studies [13] whereas others do not [4]. Some separate those where the entry diagnosis is stroke or hip fracture, even though it is not clear why the success or failure of an intermediate care service should depend upon the medical diagnosis. The services themselves are not easy to classify, since a multitude of terms may refer to similar services and similar services may be given different names [15]. *Systematic reviews* rely on the published research evidence being comparable, of sufficiently high quality and addressing variables that are of interest. In health services research, this frequently includes measures of quality of life and costs. The former is often associated with non-comparable measures and the latter with insufficient attention paid to the costs to social care providers, patients or their families. The purpose of conventional systematic reviews is to identify reliable information about effectiveness. This has proved

helpful for simple interventions, but is less valuable for complex interventions such as an entire service, where the relationships between the structure, process and outcome are crucial.

One of the greatest benefits of a systematic review is not a meta-analysis, but the identification of research deficiencies. For example, despite the resurgence in interest in community hospitals or rehabilitation in care homes, there are no good trials of their effect on health outcomes or their cost implication [15]. Schemes to prevent admission to hospital have very little evaluation, far less than might be expected given that every health district in the UK has, or is developing, such schemes.

Systematic reviews and randomized control trials have yielded one area of success. Early supported discharge schemes seem to be the best evaluated [13–15]. They appear not to disadvantage patients in terms of mortality or morbidity, and they may increase the proportion of patients returning and remaining at home. They have modest effects on bed use and do not appear to increase costs. Effects on caregivers have been less thoroughly evaluated.

But, for the reason already given, there may be few randomized control trials informing most service developments ushered in by the recent Intermediate Care policy initiative. And yet, when the UK government's policy focus moves on to other areas, the extent to which this policy has met its objectives needs to be known. Evidence must come from other research methods. More appropriate methods of performing systematic reviews, which can include qualitative or descriptive data, will be needed.

Qualitative research methods include participant observation, analysis of written records and interviews with service users and staff. Properly conducted qualitative research, analysed against a theoretical framework, can generate hypotheses for focussed quantitative studies. It can support or refute findings or trends identified in randomized control studies, identify otherwise unmeasured outcomes and help to explain positive or negative findings of randomized studies. The combination of qualitative and quantitative research techniques could overcome many shortcomings of the stand-alone randomized control trial.

Routine service data are underused in research and evaluation of service developments. Many such databases were developed for administrative purposes only. But data from large databases are increasingly being used for other purposes, including clinical epidemiology, risk assessment, monitoring resource use and quality assurance. When routine clinical databases are used to examine questions about the effectiveness of interventions, errors of interpretation could arise from incomplete or inaccurate data and because patients receiving different treatments may differ with respect to unknown prognostic factors. On the other hand, routine data using real-world patients is not subject to the recruitment and sampling problems found in

many randomized or other prospective cohort trials. For example, very old people, many of whom who have many diagnoses and take multiple medications, are unlikely to be included in randomized control studies of new drugs, yet these new drugs are likely to be given to such people. The use of routine clinical databases can be used to see if the benefits of new drugs seen in trials apply to real life, and there is growing expertise of this approach [16–19].

A similar approach can be taken to service evaluation. Here too, the samples recruited to randomise control studies could be unrepresentative. Pragmatic approaches to trial design can ameliorate this problem, but in the performance-managed National Service Framework for Older People, randomized studies may be impossible or undesirable, making the examination of routine clinical data a plausible proposition. A study nearing completion evaluating Intermediate Care in Shepway, East Kent, is based on the use of standardised assessment data from old people using local Intermediate Care services (ICON) [20]. In this project, a model depicting the path of people through services is made using their clinical characteristics and the criteria for admission to the services. It is intended that the model will allow simulation exercises to predict the effects of varying the provision of the services.

Conclusions

The introduction of Intermediate Care into the UK's National Health Service poses clinical and academic challenges. Clinicians and academics will need to think radically to find the solutions. If the clinical challenges are not met, many older people may find themselves disadvantaged. If the academic challenges are not met, then we may never know.

IAIN CARPENTER, JOHN R. F. GLADMAN¹,
STUART G. PARKER², JOHN POTTER³

*Centre for Health Service Studies, George Allen Wing,
University of Kent at Canterbury, Canterbury, UK*

¹*Division of Rehabilitation and Ageing,
School of Community Health Sciences,
University of Nottingham, Medical School,
University Hospital, Nottingham, UK*

²*Sheffield Institute for Studies on Ageing,
University of Sheffield Community Sciences Centre,
Northern General Hospital, Sheffield S5 7AU, UK*

Fax: (+44) 114 271 5771,

Email: S.G.Parker@Sheffield.ac.uk

³*Clinical Effectiveness and Evaluation Unit,
Royal College of Physicians, London, UK*

References

1. Warren MW. Care of the chronic aged sick. *Lancet* 1946; 841–3.

I. Carpenter *et al.*

2. McDonagh MS, Smith DH, Goddard M. Measuring appropriate use of acute beds: a systematic review of methods and results. *Health Policy* 2000; 53: 157–84.
3. National Beds Enquiry (NBE)—Shaping the future NHS: long term planning for hospitals and related services. London: Department of Health, 2000.
4. Hammerman D. Towards an understanding of frailty. *Ann Int Med* 1999; 130: 945–50.
5. Stuck AE, Siu AL, Wieland D *et al.* Comprehensive geriatric assessment: a meta-analysis of controlled trials. *Lancet* 1993; 342: 1032–6.
6. National Service Framework for Older People. London: Department of Health, 2001.
7. Mulley GP. Alternatives to hospital care. *Age Ageing* 2001; 30 (suppl. 3).
8. Care Trusts—emerging framework. Health and Social Care Joint Unit. (Ref 23486). London: Department of Health, 2001.
9. Rudd AG, Irwin P, Rutledge Z *et al.* The National Sentinel Audit for Stroke: a tool for raising the standards of care. *J Roy Coll Phys Lond* 1999; 33: 460–4.
10. Rudd AG, Lowe D, Irwin P *et al.* National Stroke Audit: a tool for change? *Quality in Health Care* 2001; 10 (3): 141–51.
11. Rudd AG, Irwin P, Rutledge Z *et al.* Regional variations in stroke care in England, Wales and Northern Ireland. *Clin Rehab* 2001; 15 (5): 562–72.
12. Prescott RJ, Counsell CE, Gillespie WJ *et al.* Factors that limit the quality, number and progress of randomised controlled trials. *Health Technol Assess* 1999; 3.
13. Cameron I, Crotty M, Currie C *et al.* Geriatric rehabilitation following fractures in older people: a systematic review. *Health Technol Assess* 2000; 4.
14. Sheppard S, Iliffe S. Effectiveness of hospital at home compared to in-patient hospital care. *The Cochrane Library*, issue 3. Oxford: Update software, 1998.
15. Parker G, Bhakta P, Katbamna S *et al.* Best place of care for older people after acute and during sub-acute illness: a systematic review. *J Health Serv Res Policy* 2000; 5: 176–89.
16. Bernabei R, Gambassi G, Mor V. The SAGE database: introducing functional outcomes in geriatric pharmaco-epidemiology. *J Am Ger Soc* 1998; 46: 251–2.
17. Gambassi G, Landi F, Peng L *et al.* Validity of diagnostic and drug data in standardized nursing home resident assessments: potential for geriatric pharmacoepidemiology. SAGE Study Group. *Systematic Assessment of Geriatric drug use via Epidemiology. Med Care* 1998; 36: 167–79.
18. Gambassi G, Lapane KL, Sgadari A *et al.* Effects of angiotensin-converting enzyme inhibitors and digoxin on health outcomes of very old patients with heart failure. SAGE Study Group. *Systematic Assessment of Geriatric drug use via Epidemiology. Arch Int Med* 2000; 160: 53–60.
19. Sgadari A, Lapane KL, Mor V *et al.* Oxidative and non-oxidative benzodiazepines and the risk of femur fracture. The Systematic Assessment of Geriatric drug use via Epidemiology Study Group. *J Clin Psychopharmacol* 2000; 20: 234–9.
20. Carpenter GI, Mackenzie M, Kotiadis K. The ICON project. Canterbury, UK: Centre for Health Service Studies, University of Kent.