This edited volume demonstrates the value of critical thinking about health policy.

Short new pieces by colleagues celebrating Professor Alan Maynard's contributions to academic and public life are followed by a selection of his own writings on efficiency and equity, quality and outcomes, health care financing, markets and competition, workforce, primary care budget holding, pharmaceutical purchasing, and alcohol & drug abuse. Maynard's work matters: it matters to policy-makers, managers, practitioners and citizens, as well as to academics, and it illustrates how intellectual insight, wit and purposeful provocation can be used to achieve impact.

'Alan is one of the world's most influential health economists. His articles are classics in the field. It is a pleasure to revisit them.'

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'Insightful, entertaining and eye-opening – particularly for those who think health economists just add up costs.'

Professor Lise Rochaix, *Paris School of Economics*

'The world was changing and the economic consequences of running a modern health service becoming painfully obvious. Alan brought sense to the situation, leading us through a whole series of big words associated with even bigger concepts.'

Sir Kenneth Calman, *Former Chief Medical Officer, England*

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Baroness Bottomley, *Former UK Secretary of State for Health*

'The *Special One* of health economics – those he has mentored swear by him, those he has confronted swear at him.'

Professor Stephen Birch, *McMaster University, Canada*

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MAYNARD MATTERS
Critical Thinking on Health Policy
Edited by
Richard Cookson, Maria Goddard
and Trevor Sheldon

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Brilliant, irreverent and almost always right – essays by a sceptical health economist who changed the way we think about policy

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Preface

Anthony J. Culyer

Tony Culyer has been a long term colleague and co-author of Alan Maynard at both Exeter and York Universities since 1966. They are now both retired, though hardly retiring, emeritus professors at York and still good friends.

Maynard and I were – some will say still are – troglodytes. There was no such thing as health economics when we were both assistant lecturers at Exeter University in the mid-1960s. We worked in an intellectual cave. Our contributions such as they are, were wrested, it sometimes felt, from an unyielding rock of opposition. Health care was not a field for economists admonished the social administrators. Health care was not a field for economists echoed our seniors in economics. But young economists are also trained as gladiators and the main mark of professional success was, and often still is, how much blood you leave on the floor (of the cave as of the seminar). So we carried on regardless, both blooded and bleeding, and Alan has been unstoppably carrying on to this very day.

It's a great delight for me to write a Preface to this wonderful book celebrating Alan's wit and wisdom. He is a true original,

and the pages that follow, for those (there must be some somewhere) who are unfamiliar with the Maynard style, will demonstrate this truth both through the indirect evidence of his host of admirers and the direct evidence of his own scribblings. These pages will also delight and amuse you. If anyone proves that economists do not have to be po-faced misery guts, it is the man himself. He operates at all levels: his trivialised addresses to his friends and colleagues ("hello there tickley-poo") at one level, his trenchant and value-laden judgments (embodied in his classic "redisorganisation of the NHS") at another. A simultaneous cure for both pomposity and irresponsible policy making. A dangerous fellow!

You will meet seven Maynards in these pages:

1. The health economics pioneer

Early (1960s and 70s) cost-effectiveness studies (e.g. cimetidine, dangerous drugs legislation), health service inequalities and economics of mental health (both before they became fashionable), an analytical approach to health service design and management.

2. The high class journalist

Innumerable think pieces in the Health Service Journal. Often scathing, often ironic, often right, NEVER dull.

3. The high class academic

Founding editor of a great journal: Health Economics.

4. The policy wonk

His impact on family doctor fund-holding, the creation of NICE, workforce contracting.

5. The academic manager

Founding director of the Centre for Health Economics (still the world's leading research centre of its kind), and of the world's leading post-graduate training programme in health economics.

6. The teacher

Insightful, amusing (often hilarious) but wise and caring too. Never without a box of Kleenex for those who found the going tough.

7. The NHS chair

York Hospital NHS Foundation Trust for 12 years, Vale of York NHS Commissioning Group 2012-15.

There is scarcely an issue in health and health care that he has not touched upon, indeed dug deeply into. But let me not waste your time with further encomia. Read on and see what I mean – he is irresistible.

Notes on the editors

Richard Cookson

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Richard met Alan in 1999, after finishing a PhD in a somewhat arcane branch of economics. Inspired and encouraged by Alan, he subsequently shifted his research in a more policy-oriented direction, and now tries to do work on health inequalities that goes beyond describing problems towards finding solutions.

Maria Goddard

Professor and Director, Centre for Health Economics, University of York, UK

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Maria is proud to lead the research centre founded by Alan and strives to follow his lead in maintaining its influence on health economics and policy. Her own research interests were shaped by Alan's guidance when she was a junior researcher at the Centre for Health Economics in 1988.

Trevor Sheldon

Professor and Dean, Hull York Medical School, University of York, UK

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Trevor's first job at the University of York in 1992 was in the Centre for Health Economics where Alan was its inspirational director. In his research on health services and health policy Trevor has been influenced by Alan's passion for making research count.

Acknowledgements

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The idea for the book title "Maynard Matters" came from a conversation with Nick Timmins, the former public policy editor of the Financial Times. We would like to thank Nick, not only for this title but also for his infectious enthusiasm for the project and his help in roping others in. Nick was clear that Maynard does indeed matter, to a whole range of people, and that his contributions are worth celebrating and bringing to the attention of future generations.

We would also like to thank all those who kindly provided endorsement quotes; and the many colleagues who have provided advice and encouragement at different stages of this project. We are also grateful to the Centre for Health Economics for contributing to production costs.

Finally, we would like to thank and acknowledge the publishers and co-authors of all the publications listed below

for their kind permission to reproduce material from those original publications. We have made every effort to obtain the appropriate authorisations from all the relevant copyright holders.

Chapter 12: Maynard, A. (1997) Evidence-based medicine: an incomplete method for informing treatment choices. *The Lancet,* Volume 349, No. 9045, p.126–128, 11 January 1997.

Chapter 13: Maynard, A and Sheldon, T. (1997). "Health economics: has it fulfilled its potential?" Non-Random Reflections on Health Services Research: on the 25th Anniversary of A.L. Cochrane's Effectiveness and Efficiency (edited by Alan Maynard and Iain Chalmers), British Medical Journal Publishing, London, p.149-165.

Chapter 14: Maynard, A and Keenan P. (1981). "The economics of alcohol abuse." *British Journal of Addiction,* 76(4): 339-345.

Chapter 15: Wagstaff, A and Maynard, A. (1998). Economic aspects of the illicit drug market and drug enforcement policies in the United Kingdom: introduction. Home Office Research Study 95, London: Her Majesty's Stationary Office, p.1-10.

Chapter 16: Maynard, A & Walker, A. (1995). Managing the medical workforce: time for improvements? *Health Policy*, 31(1), p.1-16.

Chapter 17: Maynard, A. (1999). Money down the drains. *Health Service Journal,* Volume 109, p.18-19.

Chapter 18: Maynard, A. (1987). A plea for measuring outcomes. *Health Service Journal*, 97(5043):365.

Chapter 19: Maynard A. (2001). Ethics and health care 'underfunding'. *Journal of Medical Ethics*, 27:223-7.

Chapter 20: Maynard, A and Sheldon, T. (2002). "Funding for the National Health Service." *The Lancet,* 360(9332):576.

Chapter 21: Maynard, A. (1991). Developing the Health Care Market. *The Economic Journal,* Vol. 101, No. 408, p.1277-1286.

Chapter 22: Maynard, A. (2005). International healthcare reform: what goes around, comes around. p.1-5 in The Public-Private Mix for Health Care (edited by A Maynard), Nuffield Trust and Radcliffe Publications.

Chapter 23: Maynard, A. (2010). "Shifting the deckchairs on the Titanic", *Journal of the Royal Society for Medicine*, 103: 304-305.

Chapter 24: Culyer, A J, Maynard A K, Williams A H. (1982). "Alternative systems of health care provision: an essay on motes and beams" in Mancur Olsen (ed.), A New Approach to the Economics of Health Care, Washington: American Enterprise Institute, p. 131-150.

Chapter 25: Maynard, A. (1986). Performance incentives in general practice. In Teeling Smith, G. Health, Education and General Practice, Proceedings of Papers prepared for a discussion meeting held on 30th October 1985, together with a summary of the discussion. Office of Health Economics, London, January 1986.

Chapter 26: Maynard, A and Bloor, K. (1997) Regulating the pharmaceutical industry. *British Medical Journal*, 315(7102), p.200-201.

Introduction

Why read this book?

This edited collection demonstrates the value of critical thinking about health policy by illustrating how one of the world's most influential health economists communicates his ideas. Alan Maynard has had a profound influence on the development of the health economics profession, on health service decision making, and on how we think and talk about health policy.

Alan's work matters: it matters to policy-makers, managers, practitioners and citizens, as well as to academics. His contributions are worth reading, re-reading and celebrating. We hope this book will help to bring Alan's irreverent wit and wisdom to the attention of the next generation of health scholars and policy-makers around the world, and go some way towards inspiring them in the same way that he inspired us.

Part One of the book consists of a set of short pieces written by Alan's colleagues, celebrating his contributions to different areas of academic and public life. Part Two contains a selection of Alan's work, with short editorial introductions written by Trevor Sheldon. We chose fifteen examples that

give a flavour of Alan's intellectual range and depth as well as his purposefully provocative writing style. We have kept the book short, as the aim is to entertain as well as to educate, in keeping with Alan's own approach as a communicator.

Who is Professor Alan Maynard?

Educated at the Universities of Newcastle-upon-Tyne (first class honours in economics, 1967) and York (BPhil in economics, 1968), Alan first taught economics at the University of Exeter before his appointment to the University of York in 1971. There he became the founding Director of the Graduate Programme in Health Economics (1977 – 83) and in 1983 was appointed founding Director of the Centre for Health Economics (CHE), which he led for 12 years. In 1992 he helped launch the international academic journal, *Health Economics*. After a brief spell in 1995 as the Chief Executive of the Nuffield Provincial Hospitals Trust, he returned to academia in 1996 to create the York Health Policy Group in what was then the Department of Health Studies (now the Department of Health Sciences) at the University of York, where he is currently Professor Emeritus. In 2015, Alan was awarded (jointly, with Tony Culyer) the William B Graham Prize for Health Services Research in recognition of making a major contribution to the health of the public through innovative research in health services.

Alongside his academic life, Alan has also undertaken key roles in the NHS as Non-Executive Director and Chair of York Hospital Trust and the Vale of York Clinical Commissioning Group, respectively. Alan was awarded an OBE in 2009 for services to the NHS.

What will you read and why does it matter?

Part One of the book contains eleven contributions from colleagues whose paths have crossed with Alan's in one way or another, over the past four decades. These are all written in an informal style, often incorporating personal anecdotes and recollections arising from a shared history. This makes for an entertaining read, but these contributions also have a serious intention: focusing on why Alan "matters" to different audiences within and outside academic circles, and reflecting on the breadth and depth of his influence. We start with a view from Canadian colleagues, Morris Barer and Bob Evans, describing Alan's ability to turn academic ideas into action, using wit, as well as wisdom, to do so. This theme is also reflected in Rudolph Klein's chapter, in which he refers to Alan's irreverence, but also to his drive and moral commitment to make a real difference to society. The next chapter is written by Nicholas Timmins who, as a former *Financial Times* journalist, experienced at first hand Alan's skill as a communicator of complex ideas to a wide audience, an ability which certainly played a major role in establishing the influence of health economics on policy and practice. This influence would not have been as compelling, nor as persistent, if it were not for Alan's role in developing the health economics profession, as described in Anne Ludbrook's contribution. Alan inspired and supported a cadre of students and early career researchers who have gone on to make their mark in the world of academia and beyond. In the next chapter, Maria Goddard describes Alan's early days at the University of York – still seen by many as the birthplace of health economics in the UK – and in particular his role as the founding director of the Centre for Health Economics (CHE) in 1983. Another "founding" role for Alan in his early days at CHE was

to launch a new journal, *Health Economics*, now a leading international journal in its 25th year and an important vehicle for disseminating health economics research, as described by co-editor, John Hutton and editorial manager, Frances Sharp. Alan's tireless advocacy for the measurement of outcomes from health care and their use in decision-making is documented by Nancy Devlin, highlighting how Alan gave short shrift to critics who thought this was too difficult and costly to achieve. The next three chapters reflect on Alan's impact on policy and practice. They start with a piece about Alan's authenticity and influence in health management circles, derived from his hands-on experience in NHS non-executive roles spanning more than 20 years. This is written by Andrew Cowper, whose background in writing aimed at managers gives him an insight into the reasons why Alan has succeeded in this endeavour. Clive Smee, chief economic adviser in the Department of Health for 18 years, highlights Alan's major achievements as a policy innovator and initiator in three important policy areas that have had a lasting impact on the NHS – GP fundholding, the "fourth hurdle" of cost-effectiveness for new technologies, and performance appraisal for health professionals. Alan's willingness to challenge prevailing opinion, and confront vested interests, is the reasoning behind Virginia Bottomley's characterisation of him as a "window-breaker", drawing on her interactions with Alan when she was Minister for Health and Secretary of State for Health in England. Part One ends where it began – with another perspective from outside the UK – this time by Jane Hall from Australia, who recalls Alan's contributions to international health policy research and debate, especially his healthy scepticism of the ability of constant, poorly evidenced and evaluated health reform – or "re-disorganisation" – to make any real difference.

Part Two contains fifteen selected essays written by Alan. First we have Alan's most highly cited paper, "Evidence based medicine – an incomplete method for informing treatment choices", on why economic evidence should be central to evidence informed decision making. The next piece, co-authored with Trevor Sheldon, is a critical look at the role of health economics in producing evidence to inform decision making – including a scolding for economists who focus narrowly on pharmaceuticals. We then have an early think-piece on the economics of alcohol abuse, with Patricia Keenan. Alan helped to pioneer modern economic and policy thinking on the abuse of alcohol and illegal drugs, and authored several landmark policy reports in this area – including a report on the economics of illegal drugs in 1988 co-authored with Adam Wagstaff, the introduction of which is reproduced next. We then have two pieces reflecting Alan's work on the health care workforce, the first on the economics of the medical labour market and the second criticising the monopoly position of the public health medicine profession. This is followed by an influential article in the *Health Service Journal*, advocating outcome measurement. Next we have two pieces on health care funding. First, an analysis of the often dubious claims made by healthcare lobby groups seeking additional funding – including doctor, manager and patient groups as well as the pharmaceutical industry. Second, a letter to *The Lancet*, co-authored with Trevor Sheldon, analysing the potential consequences when governments do pour in additional funds. This is followed by four pieces on international health policy and alternative forms of provision. First, an analysis of the role of competition in health care published in the *Economic Journal*, in relation to the introduction of market forces into the English NHS in the 1990s. Second, a set of two articles

that provide a sceptical glance at international healthcare reform and the perennial re-cycling of old policy ideas – "what comes around, goes around" – including a wry look back at UK health reform over the decades and lessons still not learned. Last, a think piece on comparing international health systems, written jointly with two other "founding fathers" of health economics based at the University of York: Alan Williams and Tony Culyer. Finally, we conclude with papers illustrating two of Alan's most important policy influences in the UK, both with international significance. First, a paper advocating "GP fundholding": the giving of budgets to family doctors to purchase a comprehensive package of health care for their patients, including hospital care. Second, a piece advocating "fourth hurdles": a formal institutional requirement that new pharmaceuticals and other health technologies should not receive public funding unless they demonstrate cost-effectiveness, as well as quality, safety and clinical effectiveness.

What you will not read and how you can find out more

We have had to leave out many of Alan's important contributions, since he has published hundreds of academic papers on diverse topics and millions of words in columns, letters, tweets and other formats aimed at a wide range of audiences. We have not included anything, for example, on Alan's pioneering contributions to the study of social mobility in Britain – such as his work with Anthony Atkinson and colleagues following the experiences of the children and grandchildren of the original participants in the classic Rowntree study of poverty in York at the turn of the 20th century. Nor on the economics and ethics of resource allocation – such as his work with Anne Ludbrook and Steve

Birch on the allocation of resources between the constituent parts of the United Kingdom. We have only scratched the surface of his interests in the economics of the health care workforce, for example neglecting his influential work with Karen Bloor and Nick Freemantle on variations in hospital consultant productivity. For a reasonably complete list of Alan's academic publications, including all of the above, please visit his website at the Department of Health Sciences, University of York which can be found at: https://www.york.ac.uk/healthsciences/our-staff/emeritus/alan-maynard/#publications

Putting this book together in honour of Alan and his achievements was an absolute pleasure for us. We hope you find it entertaining and informative.

Richard Cookson, Maria Goddard and Trevor Sheldon

PART ONE

Why Maynard Matters

1

Maynard the Economist for All Reasons

Morris L. Barer and Robert G. Evans

Morris Barer and Bob Evans are health economists at the University of British Columbia, Canada. Barer is a Professor in the School of Population and Public Health, and Founding Director of the University's Centre for Health Services and Policy Research (CHSPR). Evans is Emeritus Professor in CHSPR and the University's former Department of Economics (not the Vancouver School of Economics), and author of "Strained Mercy: The Economics of Canadian Health Care". Barer and Evans were editors of "Why Are Some People Healthy and Others Not? The Determinants of Health of Populations".

Very few stand-up comics have tenure. Alan Maynard speaks truth to power with force and a profound and deep understanding regarding that about which he speaks. He is also very funny. He is not actually unique in possessing both an international reputation as a leading student of health care systems and a formidable dry wit on the podium, but he *is* one of a small, elite band. (No names, no pack-drill.)

Casual empiricism suggests that there is, in fact, a certain correlation between an interest in the economics of health,

and a well-developed sense of humour. The jester's tradition is of course centuries (millennia?) old; if you want to tell powerful people things that they do not want to hear, you had better be entertaining as well as clever if you want to be invited back (or survive to see the next dawn). As Feste says in *Twelfth Night*, "I wear not motley in my brain."

Weird things go on in health care, not merely the administrative sinning in all large and complex organizations, but also and particularly the smug self-righteousness of the dominant professions defending the *status quo*. Alan relishes the opportunity to afflict the comfortable. The critical message is more likely to stick, if it is barbed with irony.

Where he *has* gone beyond other academic health economists (and this *may* make him unique), is in having been prepared to go down into the pit, to take a hand in actually participating in the running of organizations tasked with delivery or governance responsibilities. (Most of) the rest of us find it much less demanding, and certainly much safer, to stand back and give excellent, largely unheeded advice. This is unfortunate, because there is nothing like the coal face as a classroom for understanding the nature of coal. Too many of our brethren have failed to understand this fact, to the detriment of those affected by their (misguided) policy prescriptions.

Alan is covered in coal dust. He has been responsible, over much of his career, for playing leadership roles in public institutions charged with turning some of his most important academic ideas into action. For over two decades he served as chair or director of NHS trusts or commissioning groups. The remit of these institutions was to purchase care from

providers in ways that created incentives to improve the health of the populations for which they were responsible – real time knowledge translation. That he survived so long in these roles attests to the soundness of the underlying ideas, the skill with which he was able to communicate these ideas to managerial peers, and his sensitivity to the warning of political scientist, Jim Morone (paraphrased): never underestimate the power of incentives, and never overestimate the ability of an economist to predict their effects.

Alan has also been extremely active and productive above ground, in the arcane world of the academy. There he has managed not only to create an impressive traditional academic resumé, but to distinguish himself as an influential profession builder. Amongst his best-known and most widely influential leadership roles have been as founding director of the University of York graduate programme in health economics, founding director of the Centre for Health Economics at the same University, and founding editor of the international journal *Health Economics*. In all three of these roles, he has had an out-sized influence on the evolution of the profession. Indeed, he (and colleagues Tony Culyer and Alan Williams, amongst others) established the University of York as the world's leading centre for health economics, a status it enjoys to this day.

Finally, Alan excels as a communicator to students, system administrators, colleagues and the public. Talleyrand said that speech was given to man to conceal his thought. Alan failed that course. He has always displayed a remarkable gift for making his ideas accessible to varied audiences. In this, again, he has few peers amongst economists.

The papers included in this collection do a wonderful job *as* a 'flight' – a broad and varied taste of the range, the wisdom and the humour – and might best be enjoyed with a flight (or a pint).

2

Maynard the Voltaire of Health Economics

Rudolf Klein

Rudolf Klein is Professor of Social Policy Emeritus at the University of Bath, Senior Fellow of the British Academy, and author of The New Politics of the NHS.

First, a declaration of bias. I tend to resent (as a practitioner of the craft myself) the appropriation of policy analysis by economists. Similarly, I am sceptical about some of the claims to special policy wisdom of economists operating in the health field. Too many, I find, seem to have a naive faith in QALYs, reflecting methodological innocence and an unreflective utilitarianism. Too many, in my view, appear to think that evidence should guide policy action in situations where only policy action can produce the evidence. Too often I find myself bemused by statistical wizardry, wondering whether the inevitable simplifications required by modelling don't exclude crucial dimensions of a complex world.

Why then do I view Alan not only with affection but also admiration? Is it because he is more modest in his claims for the discipline than other economists? Surely not: he is conspicuously wide ranging and ambitious in the scope

of his writings. Is it because he is less given to professional imperialism than other economists? Surely not: after all he has played a large part in creating the profession, sending out economic missionaries from York to convert the heathen (and colonise universities and health ministries) throughout the world.

No, the reasons for my admiration stem from Alan's special combination of energy, moral drive and irreverence. Let's start with the energy. Consulting ResearchGate I found that Alan had (as of June 2016) 510 publications to his credit, with 3,900 "reads" and 4,225 citations. Consulting Twitter, I found that he had a total of 24,500 tweets to his name – with an average of 48.2 in the previous 30 days – and 11,000 followers, though even this herculean effort only earned him a worldwide ranking of 559,203 (one shudders to think of the investment of time and effort needed to get a higher ranking).

What is striking in all this is the ethical commitment that it represents. Alan is a moralist. For him a failure to act on – or, if need be, generate – the evidence for a policy intervention is an ethical failure. So identifying what interventions give the "biggest bang for the buck" is the moral obligation of all policy makers. He sees a reform of the NHS, or indeed of any health care system, "as an experiment on fellow citizens", which has to be justified and undertaken responsibly, and not on some ideological whim. If Alan writes and tweets so energetically (and sometimes so impulsively) it is, I suspect, because of a sense of indignation at what he sees as human stupidity or, worse still, deceit and dishonesty.

It is easy to overlook this sense of moral commitment because of the characteristic which many of us associate most immediately with Alan: his irreverence, shading into cynicism. He is an intellectual agent provocateur. He likes nothing better than shocking an audience with his attacks on the powerful. Consider, for example, his critique of the Royal Colleges, those symbols of the medical profession's claim to special status. These, Alan wrote in 2003, "enjoy tax breaks and taxpayer funded grants but do not have the will or capacity to protect patients". And just to rub the point home (and Alan seldom can resist the temptation to rub the point home) he suggested a programme of amalgamation. If there is a conventional wisdom in sight – for example about the number of nurses needed and their role – he will bring the artillery of his wit into action. If there is a balloon of pomposity to be pricked, Alan will get out his bayonet.

Undoubtedly Alan overdoes it at times. When the attack mode becomes a default setting, it loses its edge. The audience can laugh comfortably – it is just Alan doing his thing – and remain unshaken. But this is to ignore the moral seriousness which underlies the fun. Alan is (to allow myself just a touch of hyperbole) the Voltaire of health economics. "Écraser l'infâme" could be his motto, too: using the weapon of ridicule to crush infamy. While the superstitions of religion and state were Voltaire's target, it is the intellectual and political superstitions of today which are Alan's target. And, what is more, he has shown us that it is possible to be serious without being dull.

3

Maynard the Communicator

Nicholas Timmins

Nicholas Timmins was public policy editor and commentator on the Financial Times from 1996 to 2012, and is the author of "the Five Giants: A Biography of the Welfare State".

Maynard Matters. Well he certainly did to a whole bunch of journalists of my generation and still does to succeeding ones. Because, above all else, Alan is the great communicator.

It is for others – his peers, I guess – to judge quite how good a health economist he has been, and how original and far reaching his academic work, but you don't win the Graham Prize without being a decidedly good one.

But it is his infectious enthusiasm, his sheer *joie de vivre*, his hatred of cant and bombast, his desire to detonate anything going in order to make you think differently, and his unstinting willingness to give up time to explain basic and not so basic concepts to the outside world – not just to those he taught – that marked him out. The great communicator – something that these days is looked down on less in academic circles, but was certainly looked down on pretty severely by some when Alan started doing it.

Given that Alan is something of a force of nature, it is slightly remarkable that I can't recall my first encounter with him. But I know I have some cuttings quoting him from when I was the health services correspondent on *The Times* back in the 1980s. And it is to him – and to Tony Culyer, with later additions by John Appleby at the King's Fund – that I owe what little grasp I have of health economics.

The phone would go and that instantly identifiable voice would say "Blossom dearie, you are wrong about that …. You should read this, or that" and the "this or that" was only rarely Maynard promoting his own work. "Read Bob Evans on Zombies," he'd say. Or "Culyer on Need, Greed and Mark Twain's Cat". Or whoever and whatever, while patiently being willing to explain what a standardised hospital mortality ratio was, how it worked, what it might tell you – and crucially also what it might not tell you.

Not that there was any lack of original academic work. Or, as importantly, work that had a direct impact on policy. He can claim to be the father – or one of the fathers – of GP Fundholding, or giving family doctors budgets with which to buy care on their patients' behalf, although the enthusiasm with which he claimed authorship of the idea varied over the years as it, and its successors, proved more or less effective. He was an early and public – very public, and that's the point – advocate of cost-effectiveness being as important as effectiveness, and of the famous "fourth hurdle". But he was, and is above all, an iconoclast. He could not, and still cannot, resist throwing a match into the nearest box of fireworks – pointing out the limitations of the data, highlighting where more research is (genuinely) needed, saying it bluntly when NHS data is being misused

to support a policy, pointing out where the vested interests lie, while questioning pretty much any and every piece of received wisdom.

There were loads of times when he advised, formally or informally, the health department and plenty of occasions when he was an adviser to select committees. And his direct involvement in the running of the NHS – chair of York NHS Foundation Trust for the better part of 14 years, chair of the York CCG thereafter – meant he was immersed in the day to day workings of the service in a way few academics are. So he provided a running commentary on it that was always spiced by his love of gossip. An email would arrive, or the phone go, and the voice would say: "Chuckie-egg, do you know what they've done now …..?" And out would come a story. And, of course, he wrote a lot of material – much of it highly entertaining – that was not academic. In the mainstream media, in the *Health Service Journal* and elsewhere. Indeed there is a case that all that was at least as important as his strictly academic output, although without his academic standing it would merely have been cheap commentary.

All this made him a lot of friends, but also a lot of enemies, some of whom regarded him as essentially flippant. Just a trouble maker. Clive Smee, the chief economist at the Department of Health for some 18 years also sat on its honours advisory committee. Maynard was, he says and for example, "incredibly helpful" during the run-up to Labour's first NHS white paper in 1997 that saw the creation of NICE and a much bigger effort to get cost-effectiveness embedded into the NHS's operation. But Clive says that it was always a battle to get him an honour because over the years he'd

upset too many people along the way by pointing out when they were talking tosh. He did eventually get an OBE in 2009.

My Maynard stories include the period in 1988 when Margaret Thatcher was reviewing the NHS after the mighty financial crash it suffered in 1987. The review certainly started out looking at alternative ways of funding the health service. I was on *The Independent* and it was decided we needed a series on how healthcare was funded and operated in other countries. I thought "how the hell do you do that quickly?" So I rang Alan. "Easy, sweetie," he said, and ran off a list of health economists around Europe who were part of the York diaspora – people who had done a second degree of some sort at York and who had the great advantage of knowing not only how their system worked but how the NHS worked. So they could do the compare and contrast that was needed. He then got in touch to warn them I was coming and to offer a recommendation. So the series was essentially written by flying round Europe with a tape-recorder for a week and having successive dinners with a bunch of York alumni so that we could write about how it all worked in France, Germany, the Netherlands and elsewhere. How else could it have got done in the time? Not without Alan, is the answer.

There were ups and downs, one of the downs being his short-lived move to become chief executive – or "secretary", as it was then called – of the Nuffield Trust. That lasted less than a year. The Nuffield back then had a butler, a house keeper, a huge industrial kitchen and an awesome wine cellar, all there to support the discreet and private dinners by which the Nuffield then sought to influence health policy.

Maynard wanted to put a bomb in the cellar and spend the money on something more productive, and there was a huge culture clash with the trustees. They and Alan soon parted company, with Alan returning to York. Needless to say the butler, the wine cellar and the rest of that part of the operation have long since gone. Ahead of his time that Alan was, as Yoda might say.

The Nuffield Trust's loss was everyone else's collective gain because it allowed Alan to return to what he does best – continuing to be the great communicator, without some clutch of the great and the good worrying about who he might next upset.

So journalism, and thus journalism's better part in informing the public debate about policy in health – and thus the public, patients and taxpayers – owe him an immense debt because of the way he shared his wit, wisdom, knowledge, time and contacts so generously, outside of his research and teaching commitments. My favourite Maynard moment is usually the most recent, including an email a few weeks back that opened with the appellation "Ducky socks, did you know …?"

4

Maynard the Mentor

Anne Ludbrook

Anne Ludbrook is Professor of Health Economics in the Health Economics Research Unit, University of Aberdeen. She is Associate Editor of the journal, Health Economics.

Writing about Alan Maynard's contribution to developing the health economics profession has to be one of the most challenging tasks I have done in my career. His contribution began well before health economics was the recognised discipline that it is now, and over the decades that his career has spanned, he has continued to make his mark across a diverse set of topics. But it is a contribution that goes beyond the extensive published research, a small portion of which is included in this volume, to include developing talent at all levels of the health economics profession. From his base in the University of York, Alan helped to develop a cadre of students and early career researchers, creating a professional environment in which they could thrive and go on to play leading roles in the burgeoning international health economics profession.

As an undergraduate, my first contact with Alan (c 1975) was a course on applied economics which covered the

whole gamut of economic and social issues. I have a vague recollection of writing a (not very good) essay on the economics of the Cod Wars,[1] in the days when writing essays was about exploring ideas rather than passing assessments. In this course, we were encouraged to look for the economic questions underpinning diverse issues, to think critically about problems and to be sceptical about solutions. Although I don't recall there being a health example in this course, these are the key features of the Maynard approach to health economics, delivered in a manner which inspired students to engage with, and apply their learning to, the real world.

The MSc in Health Economics founded at the University of York by Alan in 1978, bore the same qualities and was one of the milestones along the way to health economics becoming established beyond a minority interest within Economics departments. The course was novel in having summer research placements during which students would write their thesis whilst based at another institution; these placements remain popular today and are emulated elsewhere. From the outset Alan's approach was innovative, with very self-directed learning through student led seminars and a wide scope of topics essential to the multi-disciplinary environment in which health economists would have to operate if they were to have an impact. The graphic slides on renal disease presented by Professor David Kerr just after lunch were more than memorable; they were a reminder of the connection between academic rigour and practical application. Even though Alan has long since moved on to other endeavours within the University of York, his links with the MSc course remain strong, giving two lectures every year and reminding students about the valuable uses to which they can put their health economics knowledge.

Despite this rapid development on the supply side of the health economics "equation", excess demand for health economists has been persistent. This has been driven by recognition of the relevance of health economics, not just as an academic discipline but as an important contributor to health policy and health service management. Graduates from the MSc at York have gone on to employment and further study in the public and private sectors all over the world: in academic research, the health care sector, health economics consultancy and the civil service. In Alan's role as the first Director of the Centre for Health Economics at the University of York, he ensured that the research programme was established with a strong applied focus underpinned by academic rigour. His contribution to establishing a new journal, *Health Economics*, provided an outlet for rigorous analysis of policy questions; the first editorial focusing on the need for health economics to inform health care reform.

Some key developments in England can be traced directly to Alan's influence[2] but it is important to recognise the broader contribution that comes from persistence; not only the careful analysis of problems and potential solutions but also being prepared to keep saying what needs to be said. There are key recurrent themes in Alan's research – for example, incentives, efficiency, problems with free markets – reflected in many of the papers in this volume and going back more than 30 years.[3] Alan has not only provided the necessary analysis but has been a persistent irritant, the grit in the machine that leads to change.

In trying to sum up Alan's contribution to health economics and the health economics profession, it seems only right to attempt to apply the same rigorous evidence-based

approach which he has advocated. Whilst there is ample evidence through publications and other impacts described by fellow contributors to this volume, what is lacking is the counterfactual. In other words, we have an experiment where N=1 but where would we all be now if the young Alan had decided to apply his talents to some other field?

That health economics as a discipline would have developed from the inaugural Health Economics Study Group meeting in 1972 seems inevitable when considering the reflective history marking the 25th Anniversary.[4] Whether it would have developed in the *same* way is more doubtful. Alan's direct contributions are many but what marked him out in those early days was the way in which he began to influence others to engage with policy issues in the "real world", demonstrating the necessity of repeating an idea until it finds fertile ground. His dedication to nurturing the capacity of health economists to make this contribution, through constant training and support, was remarkable. Whilst we don't know exactly what the counterfactual would have looked like, what is certain is that the development of health economics wouldn't have been as much fun; Alan provoking an audience of clinicians (or treasurers, or managers, or …….), albeit often tongue-in-cheek, was always a pleasure; more so because it was underpinned by a serious purpose.

Purposefully provocative is perhaps a good hallmark of the Maynard approach to health economics.

Acknowledgements

I would like to thank Andrew Jones and Luigi Siciliani, Department of Economics and Related Studies, University of York, for information on the MSc Health Economics programme.

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5

Maynard the Director

Maria Goddard

Maria Goddard is Professor of Health Economics and Director of the Centre for Health Economics at the University of York.

Think of health economics and you are likely to also think of the University of York. Mention health economics to academics or policy makers, anywhere in the world, and again York will probably come into the conversation. Alan has played a central role in forging this strong connection between health economics and the University of York, mainly through his position as founding Director of the Centre for Health Economics (CHE) from 1983 to 1995.

The economics of health featured in the research profile of the University of York before CHE was established, through pioneering research conducted in the 1970s by a cadre of bright scholars who made a lasting impact on the field, including Jack Wiseman, Alan Williams, Tony Culyer, Alan Peacock, Ken Wright and Roy Carr-Hill, as well as Alan himself. Much of this was undertaken under the auspices of the Institute for Economic and Social Research (ISER), later becoming the Institute for Research in Social

Sciences (IRISS). Alan himself was appointed as a lecturer in economics in 1971. In 1978 he became the founding director of the postgraduate MSc programme in Health Economics, the first of its kind in the UK, developed in the Department of Economics and Related Studies. Students from the programme, who have come from more than 75 countries to be trained at York, have gone on to senior positions in health economics in the UK and overseas. Almost four decades after it began, Alan is still a regular contributor to teaching the students on this course. Alan's commitment to the development and growth of the discipline and also to encouraging York's contribution to that development, is recalled in the chapter by Anne Ludbrook.

CHE was established formally on 1 October 1983, funded by a grant from the Social Science Research Centre (SSRC, later to become ESRC) and with Alan at the helm as Director. Looking back through the University archives, there are many references to intense discussions leading up to the formation of CHE, including site visits by the funders. In November 1980, the minutes of the University's ISER Advisory Committee noted that, "Discussions to create a designated research centre in health economics have been opened. But they seem certain to be prolonged and the outcome of course, is uncertain". Fortunately for York, the outcome was positive – and by today's standards, the process was in fact relatively speedy. The Centre was announced in the University's News Sheet in January 1983, heralding a major new investment in health economics intended to "develop research capacity in this important field". It was later promoted by the VC as a centre that would be the "largest of its kind in Europe", noting that York was an "obvious base" for the initiative. The funding provided was

for an initial 8 years, at just under £120k per annum. This was a sizeable sum in 1983, funding 2 senior research fellows and 4 research fellows in the first instance. Additional large grants from the Department of Health and Social Security (DHSS) that had already been raised for health economics projects in IRISS, were then brought under the umbrella of CHE, funding Ken Wright and 4 other research fellows and making CHE a "designated joint ESRC-DHSS centre". Around the same time, Alan had also been involved in a joint York/Hull initiative funded by SSRC – the Addiction Research Centre, investigating aspects of alcohol and drug addiction.

Alan was appointed as the Director of CHE and the Co-Director (alongside David Robinson from Hull) of the Addiction Research Centre. The University News Sheet from June 1983 announced that Alan had been appointed to these professorial positions, noting that "he will be (just) the youngest professor at York". This achievement was indeed a signal of Alan's intellect and drive which guaranteed the successful establishment of the Centre. Alan was quoted as stating that CHE would be run "on a co-operative basis" with projects planned, supervised and delivered by "colleagues working in close collaboration", reflecting his view that research should be "fun". It is a credit to Alan that he managed CHE in this way from the outset and it is a major reason why this remains the dominant style of research endeavour at CHE today. The focus is not on the isolated achievements of the lone scholar but about working together in groups and teams in a collaborative environment. Health economics is increasingly a team endeavour, with the best and most influential work being a product of many minds. A collegial atmosphere, allowing staff at all levels to bounce

around ideas and challenge one another intellectually in a light-hearted vein, is one of the secrets of CHE's success.

The original contract from the SSRC required CHE to develop the sub-discipline of health economics and apply it to health policy making. It required CHE to work in two or more of these areas: inequalities in access to health care, valuation of health, the economic evaluation of clinical alternatives, the supply of health care, the evaluation of whole systems of health care and planning, and budgeting and monitoring of health care. These referenced the celebrated Alan Williams' "Plumbing Diagram" which set out the structure of the discipline and the areas to which health economics could contribute, emphasising that health economics was not confined to the "economics of the NHS". The mid-term review report from CHE in 1987 noted that CHE staff had in fact worked across all the areas listed in the contract letter, providing an early signal of CHE's enduring approach which favours breadth as well as depth, avoiding narrow lines of enquiry.

Concrete evidence of Alan's determination that research results should not languish within the ivory towers of academia (despite the name of his regular *Health Service Journal* column, "From an Ivory Tower"), was the establishment of the York Health Economics Consortium (YHEC) in 1986. The CHE mid-term review noted that the work of the Centre had induced considerable demand for advice and consultancy work from the NHS, which could not be met by CHE staff. Hence Alan, along with other senior staff, decided to seek funding from the NHS for a "free-standing unit to meet these demands from service managers", successfully getting resources from the

Trent and Northern Regional Health Authorities. YHEC was set up to apply health economics techniques to resolve real issues at the coal face of the NHS and this is still part of the core mission of today's much expanded incarnation of YHEC. As the review noted, without the existence of CHE, it would have been "impossible to initiate discussions about, let alone create, the Consortium". Some years later, Alan and Trevor Sheldon (then at CHE) bid successfully for the NHS Centre for Reviews and Dissemination (CRD), funded by the Department of Health in recognition of the importance of providing decision-makers with robust and easily digestible overviews of key research evidence, and CRD was established at the University in 1984.

Before concluding this brief overview of Alan's activities in building health economics at the University of York in the 1980s and 1990s, I would like to add a personal touch in recounting some of my own experiences in working with Alan around that time. My second junior research post was at CHE under Alan's directorship, following an "interview" in 1988 with him and Ken Wright (deputy director) during which they mainly giggled and talked about cricket! In those early days at CHE, I learnt an enormous amount from Alan because he was never too busy to demonstrate the generosity of spirit which is so characteristic of his approach. He always had time to discuss research ideas and to comment on drafts of my papers. Indeed, sometimes I wished he was less assiduous in his commentary on papers because the "red pen" would come out and you would be at the mercy of his ability to spot a split infinitive at 20 paces. His views on my grammar and sentence construction were expressed in annotations such as "yuck" and "urgh", and comments such as "don't sit on the fence" and "end with a bang not a whimper" remain with

me today – even if I continue to make the same mistakes! He also helped me to develop a thick skin, for example, by dispatching me off to various hospitals around the country innocently to ask of senior clinicians how much time they spent on private practice, in order that we could calculate the costs to the NHS of various treatments. As you can imagine, that went down very well indeed. From his more established position, Alan's skin was already considerably thicker than mine, and some of the headlines below illustrate that he did not mince his words. There are too many to cite, but my favourites include: "No more horse manure" (HSJ 1994); "Is killing people wrong?" (HSJ 1995); as well as reference to the "severe learning difficulties of all politicians" (letter to THES, 1994); and his observation on the NHS Reforms of the 1990s: "Ministers have no coherent strategy and refuse to evaluate the reforms for fear of being confused by the facts" (BMA News Review 1994). I distinctly recall him telling me that he didn't see it as his job to "stir things up" but instead he saw it as his *duty* to do so.

In the internal world of CHE and the University, Alan also was a blunt speaker and I remember vividly the "yellow perils" that were commonly seen in CHE pigeon-holes. These were hand-written notes from Alan on yellow "University of York Memorandum" paper (this was well before email), in which Alan – usually over a weekend so that they were waiting in pigeon-holes on Monday – let his displeasure be known! There were rumours that the serial offenders in CHE were "delighted" to receive new yellow perils to add to their collection – which some were planning on publishing in collected volumes.

When I returned to CHE some years later after a stint in the NHS and in the civil service, Alan was no longer Director, but he is still a huge presence in the University and a major influence on health economics, health policy and the health service. For me, Alan embodies the relatively rare combination of an academic with tremendous imagination and insight along with the managerial talent and drive to get on and make things happen at a practical level – he is an "ideas person" who also gets his hands dirty.

So there is a missing link in the connection that I referred to at the start of this chapter: when you think of health economics and of the University of York, you certainly also think of Alan Maynard, as they are inextricably entwined (or entwined inextricably, as I think Alan would remark in red ink). Many fine people have played important roles in the development of health economics and also in the success of health economics at the University of York, for sure: but without Alan's talent and energy, far, far less would have been achieved in either realm.

Acknowledgements

I would like to thank Charles Fonge, The University of York Archivist who made material available to me at the Borthwick Institute for Archives.

6

Maynard the Editor

John Hutton and Frances Sharp

John Hutton was Professor of Health Economics at the University of York, Director of the York Health Economics Consortium, and Director of MEDTAP International. Frances Sharp is Publication Manager at the Centre for Health Economics, University of York. Both helped Alan set up the journal Health Economics, John as co-editor and Frances as manager of the editorial office, a role which she holds to this day.

As well as being a prolific author, Alan Maynard was also very active in encouraging others to publish. This was most clearly demonstrated by his role in the establishment, expansion and major success of the journal, *Health Economics*. In his role as Director of the Centre for Health Economics (CHE), Alan received many invitations to start a new journal dedicated to health economics. With the rapid expansion of research in health economics, and its increasing application to policy-making in the 1980s, authors were seeking publication in a wide range of medical, social science and policy journals. The existing *Journal of Health Economics*, which also had strong links with the University of York, had a strong academic focus and was over-subscribed with

publishable articles. Academic publishers sensed a 'gap in the market'. Alan resisted the calls for some time, but in 1991 finally agreed with John Wiley to edit the new journal. He enlisted the help of the present authors and in April 1992, the first issue was published.

At this time Alan was the ideal person to lead the new venture. His own standing and the reputation of CHE and the University of York in the field of health economics were important, but he brought much more than that to the project. Although initially seen by some as UK-focused – in fact in the early days it was even sometimes labelled 'the York journal' – *Health Economics* was always intended by the editors and publishers to be an international journal. Alan was able to exploit his international reputation and his vast number of international contacts in academia and health policy-making for the benefit of the enterprise. From the start the Editorial Board had a broad international membership. Through direct invitation and through his own visibility, he was able to stimulate important contributions to the journal. Although in the first year almost 60% of submitted papers were from UK authors, by the second year this had already fallen to under 40% as international interest took off.

Alan also led the way in establishing a tradition of short sharp editorials which gave a health economics perspective on current issues in health policy. At the start he wrote several himself and could always be relied on to induce contributions from those he encountered in the course of his academic and policy-related work.

In typical style, Alan's interest in the journal was all-embracing. He took a close interest in typography and design issues. The predominantly yellow cover was his

idea. He claimed that it was an evidence-based decision, as research had shown that this was the colour which was most noticeable to the human eye. He was consistent in applying this principle to the covers of CHE discussion papers and in the yellow memos he used to send to CHE colleagues to stimulate them to increased productivity.

Once the journal was established, the editorial team found itself coping with increasing volumes of submissions, and encouraging contributions became less important. Alan played an important part in maintaining the standard of published papers through his high expectations and rigorous editing. A balance had to be struck between raising the acceptance criteria whilst maintaining accessibility for authors. The increase in health economics research and the number of papers of publishable standard submitted was reflected in the fact that the annual number of issues went from 4 in 1992 to 6 in 1994, 8 in 1998, and to 12 by 2003. Quantity of submissions was also matched with quality as the journal maintained high citation rates evidenced in the impact factor.

The increased volume of submissions, and the increasingly technical work in sub-sectors of health economics, intensified the burden on the editorial team. Although he maintains a broad knowledge of the whole field of health economics, even Alan was unable to deal with everything. Editorial capacity was enhanced when Andrew Jones was invited to become a full editor in 2000. As well as supplying extra editorial capacity, Andrew greatly enhanced the journal's reputation in econometrics in health economics and supported the gradual shift towards more electronic publishing.

Alan was adept at using his influence with the publishers to ensure that the journal was properly resourced and that the organisational structure evolved with the changing pattern of work. As it enters its 25th year it has five full editors, including two based in the US, and a large team of associate editors directly handling the reviewing of papers in their specialist areas.

The subject matter, sources and volume of papers submitted to the journal provide an interesting picture of the development of health economics as a sub-discipline. In the early years, the majority of submissions were from Europe and North America with just 10% of submissions coming from the rest of the world. That figure has now risen to nearly 30% and the distribution of papers is now spread across the globe with submissions coming from countries with emerging health economics research teams. The range of topics has also diversified and now reflects current concerns such as obesity and smoking behaviour.

The challenges of editing a journal have never fazed Alan. From the early days when submissions were low, to the present day where good papers have to be desk rejected, he has been a tireless and enthusiastic editor who has encouraged research in successive generations of health economists and provided a valuable platform to make their research accessible to a wide audience of academics and policy-makers.

7

Maynard the Advocate

Nancy Devlin

Nancy Devlin is Director of Research at the Office of Health Economics, Honorary Professor at the University of Sheffield and City University London, and past President of the EuroQol Group, a European-based global network of researchers that developed the EQ-5D measure of patient reported health outcomes.

> "Please, if you really care about patients' health, measure outcomes systematically and explicitly"
>
> Maynard (1987)

Anyone who has had the experience of meeting and working with Alan encounters that most unusual of things: an economist who knows his mind and is not afraid to speak it. Alan defies Truman's cliché of economists always arguing 'on one hand… and on the other hand'. Not because his views are mere opinions, or because they lack balance: they are informed by an extraordinary breadth and depth of reading, thinking and writing. Alan is clear about the importance of achieving efficiency and equity in health care – and on the means of achieving these goals – and he has little patience for hallowed professions or institutions which stand in the way.

I first encountered Alan as an undergraduate student at the University of Otago, New Zealand in the early 1980s and was fortunate to have the benefit of his lectures on health economics while he was there as a visiting professor. These lectures were transformative (for me at least!). They were utterly different from our usual economics lectures – Alan's mixture of argument and jollity, evidence and irreverence and unashamed advocacy was compelling stuff. I am sure there is an entire generation of health economists around the world who were influenced by the exposure to this bold and disarming Maynard approach of calling a spade a bloody shovel, darlings. I came away from the experience with a quite different view of what being an economist might entail – and a broader ambition about what health economics could aspire to achieve.

As many of the articles in this collection show, Alan wrote extensively on many topics relating to health system efficiency, tirelessly promoting the debate about the inevitability of rationing, and defending the necessity of making difficult decisions. Central to his writing on these topics is the requirement for an allocation of resources based on evidence of benefits and costs. This in turn is closely related to another theme in his writing – the importance of measuring outcomes from health care.

It is important to remember that until the 1970s, cost data were still being reported in accounting terms, by input category – and that evidence on the effect of health care interventions on health was the exception rather than the norm. It is in part due to the pioneering efforts of health economists such as Alan Maynard and Alan Williams that we now take the availability of programme budget data for

granted, and that there is such widespread acceptance of the legitimacy of economics in evidence based medicine. This is most evident in the establishment of health technology appraisal systems, such as NICE, in which cost effectiveness is a central consideration.

Notwithstanding the success of NICE in appraising (largely) new technologies, Alan continues to remind us that there is still much that remains to be done to improve our understanding of the quality, outcomes and value for money of the services funded by the other (roughly) 90% of the health care budget. In the absence of outcomes data, the effectiveness and cost effectiveness of many health services remains unclear. The variations on clinical practice which Alan has been at pains to highlight in many of his writings continue to exist, in part, because of an inability to link them to consequences for patient health.

In his 2013 lecture at OHE (Maynard 2013), Alan pointed out that as long ago as 1803, the physician Thomas Percival had called for outcomes to be measured by whether patients were 'cured, relieved, discharged or dead'. In 1863, Florence Nightingale advocated that outcomes could be measured by whether patients were 'dead, relieved, or unrelieved'. Alan comments that "over two hundred years later health care systems remain tardy in measuring patient outcomes and using comparative data to 'incite' changes in clinical behaviour." (p.5)

Alan has, over many years, consistently advocated the measurement of outcomes from health care. "The purpose of the NHS is to improve population health and it is astonishing that most clinical and policy activity does not focus on the

measurement of health and the success of practitioners in improving the health status of patients." (Maynard 2003 p. 302).

The long, slow journey to outcomes measurement may in part be explained by the costs of acting – an argument which Alan neatly dispatched in 1987 with the retort "It is no good saying that NHS management resources are limited…surely the priority in management should be the use of data to improve patient health?" And in 2003 he adds that while there is a cost involved in putting outcomes measurement at the heart of NHS, "the cost of current ignorance as practised in the NHS is even higher, as demonstrated in Bristol and elsewhere." (Maynard 2003, p. 302). Other impediments to measuring outcomes are noted to be a fear that outcomes data will "create sets of management problems that are best left unsaid", leading to "loss of courage in the face of the closed ranks of the medical profession" (Maynard 1987, p.45). This is Alan, in inimitable style, telling it like it is!

Alan's advocacy in more recent years has included his work on the Department of Health (and latterly NHS England) advisory group on patient reported outcome measures (PROMs) – the routine collection of quality of life data, at the health system level – albeit for a limited number of procedures. Let's hope this is just the start of the era of outcomes measurement Alan has so long called for!

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8

Maynard the Manager

Andrew Cowper

Andy Cowper is editor of Health Policy Insight and Comment Editor of the Health Service Journal. He has been a friend of Alan's (and editor of his Health Policy Insight Columns) since February 2000.

More than ever in today's financially-stressed NHS, the work of Professor Alan Maynard matters to NHS managers and management. As the NHS trudges on through the second half of a decade of funding being highly constrained relative to demand, the managers who stand any chance of success will need a sophisticated understanding of cost-effectiveness and measuring value.

For decades, Alan has been consistently and patiently advocating for NHS managers and management to become better-versed in these areas. Progress has been uneven, as he would be the first to admit – but progress there has been. Some of the credit for this progress is his.

Alan is not the father of UK health economics: that title probably belongs to his friend and colleague Professor Alan Williams, for reasons including his influence on Archie

Cochrane to consider cost-effectiveness alongside clinical effectiveness. Yet other chapters in this book assessing his contribution across a range of fields both within health economics and beyond – from communication to policy to politics – show an impressively broad spectrum of influence.

If Alan were only a respected academic and witty commentator (and he is both), it is unlikely that his work would have had the influence it has done.

There is another important reason why Maynard matters to managers: he has been one of them. From 1997 to 2010, he chaired York Hospitals NHS Foundation Trust, and from 2012 to 2015 he chaired Vale of York Clinical Commissioning Group. So for the best part of two decades, he has seen NHS management roll from financial famine to feast and back to famine, from the perspective of an active participant. The authenticity that this involvement lends to his analysis and commentary is well-recognised by all serious figures in NHS management.

One of Alan's consistent insights has been that NHS managers need to put performance and outcome data in front of the people who actually drive almost all of the financial decisions in the NHS: clinicians.

A few years ago, Alan and I were speaking at a training event funded by the Health Foundation for clinicians who wanted to learn more about NHS management. The delegates were pretty experienced clinicians in their 40s, and the organisers actively encouraged challenge and dialogue.

Alan was in his element. He gave a funny, challenging presentation about the lack of impact that evaluation and

evidence have had on both medicine and management, and actively encouraged "heckling".

At the end of his presentation, one of the delegates asked, given the trenchancy of Alan's strictures about the deficiencies of NHS management in measuring value, how much success he'd had in driving operational change using this agenda in his time as chair of York?

"I have to be honest: much less than I'd have liked. It's slow work", Alan replied. He engaged the audience in a serious dialogue about the cultural and organisational factors that impeded better progress than his trust had seen on this agenda. It was very much a dialogue, and an exchange of perspectives. There was no 'teacher-pupil' dynamic.

The really interesting part of that conversation followed over dinner. After some unrepeatably candid (and appropriately anonymised) conversation about some personalities in the local health economy, Alan made it clear that, for all the challenges, there was real progress under way.

He described being present at a meeting with senior York clinicians to analyse and peer-review their activity data. "I wasn't there to talk: it was an observer role. But they sat down with the figures, and after a while, one of them said to another, 'hey, look: you're taking it easy here if these numbers are right'."

The person who'd been challenged said 'what do you mean? Show me that'. There was a short pause. There was a check of the data sets. And then the person who'd been challenged said 'Right: OK. I'll sort it'.

"And that", Alan concluded, "was the moment when I thought 'well, maybe we're getting somewhere with this stuff'."

There are other important Maynardisms. Alan has consistently befriended the porters, cleaners and other theoretically 'junior' operational staff in NHS organisations with which he has worked. He has long realised that these staff groups know what is actually going on in the organisation, and have relatively little to gain from bullshitting a figure whom they have come to trust, about what's really happening.

Alan is well known for telling things the way they are: he would not thank me if I didn't mention that his most recent NHS management involvement (as chair of Vale of York CCG) is with an organisation currently in financial 'turnaround'. The reflection of this fact on Alan is nil. Year-on-year rising demand for services from an ageing, fattening population with annual cuts to the NHS payment tariff, following the chaos caused by widely-derided 2012 Health And Social Care Act NHS management "redisorganisation", has left so much of the NHS financially under water that no reasonable deduction can be made about why providers or commissioners are in deficit situations.

Alan is still there, still trying.

Another reason why Maynard matters to managers is that he can recognise that solutions to challenges are contingent on the situation in which the system finds itself. Alan was probably the key proponent of the introduction of GP fundholding at the end of the 1980s, yet in recent years he has come to suggest that the purchaser-provider split in the NHS has outlived its usefulness.[1]

Alan has also become a powerful proponent of the need to (re-) introduce trust into the NHS, citing Confucius' dictum that a leader needs weapons, food and trust to survive. When in trouble, a leader should give up weapons first, then food. Trust is the last thing that should be allowed to slip: "without trust, we cannot stand".[2]

In the same lecture, Alan again called for NHS reforms to be slow, and to be informed by evidence and evaluation. Delivering the text, his smile was rueful. The road to the promised land of an effective and efficient national health service is a long one. Alan has walked it alongside managers. They need his insights, and the good ones know this.

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9

Maynard the Adviser

Clive Smee

Clive Smee CB is a Visiting Professor in Economics at the University of Surrey. He was Chief Economic Adviser at the Department of Health in England between 1984 and 2002 and is the author of "Speaking Truth to Power: Two Decades of Analysis in the Department of Health".

I first met Alan Maynard in 1984 when I was appointed Chief Economic Adviser in the UK Department of Health and Social Security (DHSS). By then Alan had been working in academia as a health economist for nearly 20 years and had recently become the founding director of the Centre for Health Economics (CHE) at the University of York, a centre supported by the Social Security Research Centre (later to be the ESRC) and the Department of Health and Social Security. In contrast, I had no background in health economics having previously worked on the economics of labour markets, social security and development issues. My first task was therefore to familiarise myself with the operation of the NHS and the burgeoning literature on health economics; and my second was to gain access to health policy makers in the DHSS. It was York's other distinguished Alan – Professor Alan Williams – who advised me on my

initial reading and who, unasked, organised a 5 day visit for me to health authorities and major hospitals in the North-West of England. Alan Maynard's initial contribution was inadvertent, but probably equally important: after noting that he had been invited to a conference with key health officials in DHSS, I successfully persuaded the Permanent Secretary that the Department's representation should also include an economist and that I should be invited too.

Alan remained Director of CHE for 12 years. Under Alan's leadership over that period the Centre published 160 Discussion and Occasional Papers, including more than 20 by Alan himself, and developed into the leading health economics research and policy centre in Europe. The output of the Centre was extraordinarily wide and much was influential. Areas where the Centre was particularly prolific included human resource planning, regional resource allocation, reforming the UK health care system, assessing efficiency, priority setting, mental health care, and hospital performance benchmarking. Most of the papers were read by somebody in the Economic Advisers' Office of the DHSS (later the Department of Health) and some certainly influenced policy development (eg Ken Wright's paper published in 1984 suggesting that para-medical training of ambulance staff would be highly cost-effective, was immediately embodied in a circular to the NHS). The Centre also directly strengthened the Department's analytical capability as a source of several new recruits.

Since stepping down at CHE, Alan has continued to be a prolific communicator of health economics ideas and perspectives. His frequent articles in the *Health Service Journal* and in the general media will have familiarised many decision

makers in the health service with economic concepts and thinking at a time when these were not widely understood or accepted. His bracing style may have put off some sensitive souls but it probably encouraged a larger number to keep reading. The sheer breadth of his audiences makes it very difficult to judge the extent of his direct and indirect contributions to health policy. But one person who has tried to identify the policy changes where Alan has made the most significant difference is the NHS's unofficial historian, Geoffrey Rivett.[1]

Geoffrey Rivett credits Alan with close involvement in initiating three significant NHS policy changes. The first was the allocation of NHS budgets by general practitioners (GPs) or what became known as GP fundholding. For Department of Health economists working on Mrs Thatcher's Review of the NHS in 1988-89, this idea appeared to come out of the blue. Subsequent literature reviews indicate that, like all successes, it had many parents but Alan can certainly claim to be its most prolific proponent, proposing it at an Office of Health Economics (OHE) meeting at Cumberland Lodge in 1984, and repeating the idea in publications by the OHE and the British Medical Journal in 1986.

The second major change was the addition of a "fourth hurdle" of cost–effectiveness in decision making on the public funding of new pharmaceuticals, a change that eventually led to the establishment of NICE, the National Institute for Clinical Excellence (now the National Institute for Health and Care Excellence). The parenthood of this idea is also hotly contested, but there is no doubt that Alan was one of its first and most vocal proponents in the UK.

The third major policy change which Alan is credited with helping to initiate is the reform of the consultant contract and the development by the medical profession of performance management systems. For many years Alan was a strong critic of the Department of Health's approach to medical workforce planning, citing a lack of attention to basic economic principles such as supply elasticities, responsiveness to incentives and inter-relationships between the health professions. Fundamentally, he was concerned at the poor performance management of health professionals, particularly the medical profession.

During the Department of Health's Comprehensive Spending Review of 1997-1998, one project (which I led) was charged with looking at ways to maximise the efficiency and effectiveness of the health service. From memory, Alan was persuaded to contribute to one of the key work areas identified: promoting clinician performance. In this area the project subsequently made two recommendations: first, to establish a database of consultant productivity which, inter alia, should be used to benchmark workload standards; and second, that in renegotiating the consultant contract, the Department's objectives should include developing performance management arrangements focused on aligning consultant performance with Trust and NHS objectives for clinical and cost effectiveness. Both recommendations were accepted. A new contract was finally agreed in 2003, although it is now in the process of being re-negotiated once more. The current contract was informed – and indeed modified – by analysis undertaken by Alan and Karen Bloor using routine NHS data matched to individual consultants.[2] The analysis also revealed for the first time that consultants

who did the most private practice also delivered the most NHS work.

These three policy developments: GP fundholding; a fourth hurdle of cost effectiveness for new drugs and later other technologies; and improved performance management for health professionals, have continued to reverberate down the subsequent history of the NHS.

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I would like to thank my former Department of Health colleagues – Keith Derbyshire, Jeremy Hurst and Mike Parsonage – for their help with this chapter.

10

Maynard the Window Breaker

Virginia Bottomley

Baroness Bottomley of Nettlestone, DL was a member of the House of Commons from 1984 to 2005, and appointed a Life Peer in 2005. She was Minister of Health (1989-92) and Secretary of State for Health (1992-95), during the design and implementation of the 1991 NHS "internal market" reforms. Among other current roles, she is Chancellor of the University of Hull.

I classify individuals into two types: window breakers and glaziers. During my time as the Minister for Health (1989-1992) and subsequently the Secretary of State for Health (1992-1995), Alan Maynard was definitely a window breaker. His original, determined perspectives as a Health Economist made a critical contribution to health policy development. All too frequently, policy criticism arose from the medical establishment, and was accompanied by an assumption of the paramountcy of their profession. The challenges of clinical effectiveness, and particularly cost effectiveness were scarcely addressed; these were pioneering and threatening issues. It was the radical Margaret Thatcher who was known for constantly repeating the phrase "we should measure outputs not inputs". Alan Maynard was

not perhaps a soul mate of Margaret Thatcher but I well appreciated the similar challenge and perspective. Alan was keen to measure outputs and inputs to ensure that the NHS provided best value care.

Alan's position was never to assume that vested interests are objective, or that the loudest voices are the correct ones. For me as an LSE graduate from the School of Brian Abel Smith, Julian Le Grand and many others, this was comfortable territory, in comparison with the powerful lobbies in the medical cathedrals. I had spent many years working for the Child Poverty Action Group in Bethnal Green, then in equally deprived Peckham associated with the Maudsley, and as Chairman of the Lambeth Juvenile Court, aged 32 at the time of the 1981 Brixton riots. With this background, I did not believe that James Robertson Justice's model of medicine[1] was necessarily the answer for the most disadvantaged and underprivileged groups in society.

Alan Maynard's writing, speaking and contributions were highly influential, frequently iconoclastic, and on occasion, decisive. Health economics, a new field in the 1980s, is now part of everyday discourse. It is a measure of the extent to which health economics is now an essential component of the understanding and delivery of health services that the present Dean of the Hull York Medical School (HYMS), Professor Trevor Sheldon, joined the University of York in the Centre for Health Economics, and was very much part of Alan's stable. Students at HYMS have lectures in health economics from Alan and others. As Chancellor of the University of Hull for more than the last decade this gives me particular pleasure.

As the UK Cabinet Minister responsible for the NHS, inevitably my life would be filled with newspaper scares, scandals and innuendo. Travelling internationally, by contrast, this was a time when the OECD and others had identified the division between commissioning and providing services as critically important. At home, the British Medical Association proclaimed disaster on every occasion whilst elsewhere, there was respect and admiration for the NHS's growing efficiency, cost effectiveness and recognition of the role of health economics. The Department for Health's Chief Economic Adviser, Professor Clive Smee, was a key contributor to internal policy debates, and I insisted that he should be present at critical meetings. It appeared that his opinions were not always those that "Sir Humphrey"[2] wanted broadcasting too forcefully. Increasingly, in discussion with other Health Ministers, we decided that a background as a Health Economist might be more relevant for the role of health minister than a background in medicine.

Alan advised health policy makers at all levels – from local to international. His unflinching style made for sometimes tense relationships, for example with the Chair of York Health Services NHS Trust in the 1990s, Sir Richard Storey. In taking on this same role himself in 1997, he may have found that the NHS "front line" was a complex, emotional and difficult place to be, even for someone with his experience.

In the late 1980s and early 1990s, during the design, creation and implementation of the NHS internal market, Alan's scepticism, wit and intellectual ability made a tremendous impact. Irreverent humour often softened his writing – he called me 'Mary Poppins' in his *Health Service Journal* column, a label which lasted. But he covered many serious

and challenging problems in health care. Cost effectiveness studies, the widespread perverse incentives inherent in the NHS, debates around merit awards, prescribing behaviours and other traditionally taboo issues, as well as a critique of the developing healthcare market, were examined with the same rigour, objectivity and courage.

Alan Maynard never hesitated to "speak truth unto power", and the NHS has benefitted vastly from his commitment, intellect and dedication.

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1. James Robertson Justice was an English character actor who played the irascible chief surgeon, "Sir Lancelot Spratt", in the "Doctor" series of British film comedies in the 1950s and 1960s https://en.wikipedia.org/wiki/James_Robertson_Justice

2. Sir Humphrey Appleby is a fictional senior civil servant character from the British TV series, "Yes Minister! And "Yes Prime Minister" https://en.wikipedia.org/wiki/Humphrey_Appleby.

11

Maynard the Globe Trotter

Jane Hall

Jane Hall is Professor of Health Economics and Director of Strategy at the Centre for Health Economics Research and Evaluation (CHERE), University of Technology, Sydney. She was the founding Director of CHERE.

Alan is a frequent guest speaker in different parts of the world. However his hosts, be they policy makers, clinicians or health service managers, are seldom soothed by congratulations on their latest reform attempts or offered the latest panacea from the National Health Service in England. Rather, they are challenged to specify their objectives and to support their strategies with data and evidence. Alan was always particularly annoyed at reorganisation that passed as reform – successive "re-disorganisation" as he termed it – which consumed scarce resources in terms of funds and labour.

A systematic approach to international comparative health policy became possible with the advent of national health accounts. The collection, classification and publication of health care expenditure data was not implemented until the 1970s. Once introduced, this allowed for valid comparisons

of healthcare costs weighed against what was achieved in terms of life expectancy. It was soon demonstrated that higher health spending was not an assured path to improving health outcomes, at least as reflected by longevity. Developments in the range of data collected, the number of countries using the same systems of classification, and econometric techniques for analysis have led to increasingly sophisticated forms of international comparison, but also more opportunities for drawing misleading conclusions. A great deal of effort has been directed towards determining the ranking of nations' performance. And a common international belief has been that increasing funding and reorganising governance and delivery systems will solve the problems. But one of Alan's insights in the international policy arena was that the performance of health systems across the world is actually very similar, *despite* great differences in history, culture and the public-private mix of funding and provision.

All countries are facing challenges with increasing cost pressures, reducing unwarranted variations in practice, improving the provision of effective treatment, generally increasing technical efficiency, and above all, ensuring value for money. This has given a focus to international comparisons based on reform within the system, or within particular parts of it. The publication of Alan's edited volume on the public-private mix for health is an eminent example of this endeavour, digging beneath and around the data to understand the context, but not replacing facts by anecdote or opinion.[1] "Management by measurement" is the Maynard approach. Alan has always emphasised that the patient should be at the centre of why we are trying to manage healthcare better. For many years he has been a staunch advocate of patient relevant outcomes, seeing them

as the most important indicator of success of healthcare. Now PROMS – Patient Reported Outcome Measures – and PREMS – Patient Reported Experience Measures – are increasingly routinely collected, reported and used in healthcare systems worldwide.

A recurring theme in many of Alan's writings over the years is the importance of getting the incentives right. For too long the debate addressed the contrast between fixed budget or capitation approaches versus payment for activity/fee for service approaches. The evidence that fixed budgets encourage risk selection and skimping on activity, while paying for the volume of services delivered leads to higher levels of activity, has been clear for decades. And neither approach provides positive incentives for quality improvement. Over recent years, more interesting experiments have emerged in many countries, using blended payments to ameliorate the perverse incentives of any single payment mechanism. Early attempts were often quite blunt and tended to have little effect as the incentives were poorly designed and the rewards too small; or they were extremely costly and often over-rewarded existing practice. Careful attention to the design of payment schemes with clear identification of the objectives and rigorous evaluation with an eye open to unintended effects, remain as important as ever. Alan has set the precedent for health economists in this regard.

Health reform is often beset by ideology passing as reform and self-interest passing as principles. Alan and I published a piece in 2005, analysing the Australian conservative government reforms that expanded the reach of the private insurance sector, with significant public subsidies, in the face

of an electorally popular, publicly funded comprehensive set of entitlements under Medicare.[2] The proposed benefits of relieving pressure on public hospitals, providing the public with more choice of provider, and reducing private insurance premiums remained illusory; yet the politics were successful. This represents another of Alan's contributions to international health policy and reform – the recognition of the power of ideology in shaping how problems are conceptualised and solutions are developed. Different ideologies are more or less prevalent in different countries, but in all there is a rivalry at the heart of the system as private providers seek to protect and advance their interests.

In his book, *The Public-Private Mix for Health*, published in 2005, Alan could conclude that the challenges of health care reform, although better articulated over the previous twenty years, remained largely unmet. "The characteristic of health care", he wrote, "is its resistance to change." A few years later writing in the *Oxford Handbook*, he noted various successes of health economics in making inroads to system reform.[3] First, health technology assessment has become commonplace through the role of the National Institute for Health and Care Excellence (NICE) in the UK, the Pharmaceutical Benefits Advisory and the Medical Services Advisory Committees in Australia and in a number of other countries. Second, the development of routine patient reported measures, PROMS and PREMs, as noted already, has become common in many countries. Third, there is wider adoption of incentive compatible payment systems, whether it is activity based funding for hospitals, or blended payment methods for providers. A further addition I will make is the end of the widespread belief that the problems of health care worldwide can only be solved by

increased funding. However, that seems to be due more to the exigencies imposed by the Global Financial Crisis of 2007 – 08, than the proselytizing of health economists.

Now, more than ever, we must have clarity around the goals of efficiency, equity and expenditure control. Reform should be evidence based, cautious in implementation and subject to rigorous evaluation. These are challenges that Alan has always posed to the politicians involved in successive "re-disorganisations" of healthcare systems; but they also set the agenda for us as health economists wishing to make the same contribution to the international policy debate as Alan has done for many years.

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Alan at work, with a twinkle in his eye.

Alan in his prime.

Alan receiving his honorary degree from Aberdeen in 2003, and, below that, his mugshot in Health Service Journal.

Imparting words of wisdom at a meeting of the International Health Economics Association.

A gruelling academic fact-finding mission in Venice.

PART TWO

Some of Maynard's Greatest Hits

12

Evidence – based medicine: an incomplete method for informing treatment choices*

Editors' Commentary

Health Economists, in seeking to ensure that society's resources are used optimally, have argued that health care should be effective and thus should be based on evidence that interventions do more good than harm. The medical profession however, did not really embrace this imperative until the late 1980s with the rise of the concept of Evidence-Based Medicine (EBM), led by clinical epidemiologists such as David Sackett in Canada and Iain Chalmers in the UK who, following the inspiration of Archie Cochrane, set up the international Cochrane Collaboration. Maynard recognised the significance of these developments which led to the more systematic evaluation of health care interventions, improved the evidence available to clinicians and other decision makers and shifted the culture towards an expectation that clinical practice should reflect evidence of what works.

Maynard, however, took this one step further and saw that EBM, whilst important, was not by itself a sufficient tool to make good decisions about the use of resources. Taking

* This chapter first appeared as Maynard, A. (1997) Evidence-based medicine: an incomplete method for informing treatment choices. *The Lancet*, Volume 349, No. 9045, p.126–128, 11 January 1997.

a societal perspective, he argued that efficiency should guide decisions in order to maximise the gain in the health of the overall population within a fixed budget. This is in conflict with a more individual approach where clinicians do whatever they can in the interests of their patients. The effectiveness-efficiency dichotomy became an ongoing source of often heated debate. Gradually though, national decisions over the choice of health technologies the NHS would fund began to be determined by cost-effectiveness rather than by effectiveness alone. The establishment of the National Institute for Clinical Excellence – later renamed National Institute for Health and Care Excellence (NICE) – in England and Wales, and similar bodies elsewhere in the world which make public coverage decisions on efficiency grounds, reflects this perspective. Maynard also argued that such social decisions should also reflect equity considerations. This has taken longer to be adopted by policy making bodies, partly because of the technical difficulties of doing so, but also because of the value judgements involved.

During the past few years, there has been a burgeoning interest in evidence-based medicine.[1–4] In the UK, proponents of evidence-based medicine exert much influence on government policy and the wider political debate about health care.

The increasing influence of evidence-based medicine is due partly to the work of the Cochrane Collaboration,[5,6] which set up agreed methods for the systematic review of treatments and will, in time, produce readily accessible databases such as those for pregnancy and childbirth.[7] The effective use of such resources requires a major change in the speed with which clinical and non-clinical managers translate

new evidence into clinical practice. To be successful, the Cochrane Collaboration has to facilitate the translation of new evidence into changed clinical behaviour and better services for patients. The advocacy role of proponents of evidence-based medicine and the Cochrane Collaboration's recommendations for effective professional behaviour[8] are, if appropriately targeted, essential for the improvement of patients' health.

I address here the central issues of the identification of knowledge and the appropriate targeting of new evidence at decision-making groups. Evidence-based medicine can provide a useful synthesis of knowledge about effectiveness and a good basis for economic modelling to inform decisions about the allocation of resources. Unfortunately, I believe that the leading proponents of evidence-based medicine, such as Prof David Sackett, at Oxford University, UK, are taking us back to the days before the work of clinicians like Hampton[9] and economists such as Williams,[10] when treatment decisions were dominated by clinicians and the individual-patient ethic of effectiveness, rather than by the population-health ethic of efficiency. If evidence-based medicine and the individual ethic are allowed to determine treatment choices, resources will be used inefficiently and unethically.

Sackett and colleagues argue that "Doctors practising evidence based medicine will identify and apply the most efficacious interventions to maximise the quality and quantity of life for individual patients; this may raise rather than lower the cost of their care."[4] This statement offers a useful but incomplete method for determining which patients should be treated. The use of the word "apply" implies little patient

choice and an authoritarian attitude towards patients. If the patient has a cancer of the neck and face, he may prefer to die rather than receive "commando surgery", which would give him only a few months of poor-quality life. Sackett and colleagues have subsequently recognised that the use of the word "apply" is unfortunate and inappropriate, and would offer the patient and their relatives the choice of effective treatments. However, Sackett and colleagues do not accept the social ethic associated with the pursuit of the maximum gains in terms of population health from a finite budget. Rather, they advocate efficacy, or, the individual-clinical ethic–ie, doing everything possible for the individual patient. Thus, according to Sackett et al data about efficacy should determine choices about patient treatments.

In a world where a patient can be treated by one of two therapies, A and B, proponents of evidence-based medicine contend that the choice of therapy should be determined by the relative efficacy of the competing interventions as determined by systematic review of the current knowledge base. Thus, if therapy A produces 5 years of good-quality life, or healthy years of life (HYs), and therapy B produces 10 HYs, a physician who favours an evidence-based approach would choose therapy B.

Decision-making that disregards costs may use society's scarce health resources inefficiently. For example, if therapy A costs £1500 and therapy B costs £7000, then therapy A produces a unit of outcome (a HY) for £300, whereas therapy B produces a HY for £700. So, therapy B, relative to therapy A, produces an additional 5 HYs for £5500–ie, the marginal cost of a HY is £1100. In terms of value for money, therapy A is the more cost-effective treatment: it

produces a HY for £300. Given a fixed budget of £70 000, therapy A will produce over 130 HYs more than therapy B.

A proponent of evidence-based medicine, who advocates efficacy as the factor that determines clinician choice, would select therapy B if he practised what he preached. The public-health physician or economist, concerned with achieving the maximum number of healthy years of life from a given budget (in the UK's National Health Service more than £40 billion), would opt for therapy A. Thus, the clinician who supports an evidence-based approach would argue that scarce resources be allocated on the basis of the interests of the individual patient and efficacy. By contrast, the economist or public-health physician would contend that scarce health-care resources be allocated according to the interests of society as a whole (the population-health ethic) and on the basis of efficiency.

Sackett argues that the ethical physician must only address the needs of the individual patient and that the effacious treatment of this patient is the essence of evidence-based medicine. When challenged by those concerned with issues of efficiency and population health, Sackett retorts that such issues are the concern of those involved in evidence-based purchasing.[12] Proponents of evidence-based medicine accept that such purchasing will sometimes conflict with efficacy but, as caring physicians, demand the right to continue to care for a patient as long as there are benefits to that patient, even if this care is not cost effective.

I believe that there are two problems with evidence-based medicine's advocacy of efficacy. Physicians are taught in the Hippocratic tradition to care for the individual patient and

enhance their welfare, irrespective of resource constraints–an extreme example of this position was described by Loewy,[11] who likened economists to Nazis. However, more than a decade ago, Hampton[9] argued that if clinical freedom meant the freedom to practise inefficiently, then "clinical freedom is dead, and no-one need regret its passing". Another way of putting this argument is that if a clinician adopts therapy B, he uses resources inefficiently. Inefficient practice deprives other patients of care from which they could benefit. By focusing on the needs of the individual patient, advocates of evidence-based medicine refuse to acknowledge this opportunity lost, or what is given up–ie, the benefits in terms of the future treatment of other patients. Such an approach is perceived as unethical by those who are concerned with achieving maximum health benefits for the general population from a limited budget: "to ignore costs is to ignore the risk to others of premature mortality and avoidable suffering".[10]

Another problem associated with evidence-based medicine is the resolution of conflicts between practitioners concerned with the efficacious treatment of the individual patient and purchasers who are concerned with efficiency and population health. Sackett's response to such issues is extreme and unhelpful. In two recent talks (a meeting of the Health Economists Study Group at the University of York, January, 1996, and the Office of Health Economics Lecture at the Royal College of Physicians, March, 1996) he warned against the dominance of purchasers' choices over those of clinicians, referring, like Loewy,[11] to Nazi Germany when clinical ethics were subjugated to the interests of fascism. Such arguments are, at best, bound to create conflict between purchasers and practitioners and are, at worst, insulting.

Sackett's second lecture was subsequently published without reference to Nazi Germany.[12] I believe that some degree of greater sophistication is needed to resolve the unavoidable and enduring conflicts between the individual and the population ethic.

Evidence-based purchasing, which requires that clinicians behave efficiently and ethically by taking account of both effects and costs in the care of patients, is a valuable approach. The implication of such purchasing is that treatment guidelines and protocols must be based on these criteria rather than on effectiveness alone.[14] So what are the problems associated with the implementation of evidence-based purchasing?

How are HYs to be measured? Improvement in terms of increased survival is, in principle, easier to identify than quality of life. Maxwell[15] defined the quality of care according to the identification, measurement, and quantification of six concepts: access to services, relevance to need (for the whole community), effectiveness (for individual patients), equity (fairness), social acceptability, efficiency, and economy. However, such criteria are unhelpful because they conflate process and measurement of outcome. What is required is the measurement of quality-of-life outcomes as well as survival endpoints. Valid measures that encompass physical, psychological, and social functioning, as well as pain and energy, have been devised and used by researchers for decades, but have largely been ignored by purchasers in the UK and by managed-care organisations in the USA.[16,17] In principle, there are quality-of-life measures that incorporate the concerns of patients about symptom relief that can be used in assessments and in purchasing. In practice, such

measures are increasingly used in clinical trials, but all too rarely in purchasing.

The measurement of cost is not a simple task. Some studies use prices or charges as a measure of cost, but this approach may be inaccurate because market price and opportunity cost–ie, the value of the alternative not chosen–rarely bear much relation to one another. However, given the shortage of data, such practice is generally unavoidable, and the results should involve careful sensitivity analysis to adjust for the likely price-cost variations and the uncertainty associated with the long-term cost of interventions.

The Cochrane Collaboration has made slow progress in the assessment of these economic issues because of the problem of measuring costs across different health systems. For example, the procedure involved in a coronary artery bypass graft differs in the USA, Spain, the UK, and Taiwan according to different inputs (doctors' and nurses' time, length of stay in hospital, etc). Furthermore, each of these inputs has a local price. In principle, these problems can be mitigated if clinical trialists measure physical inputs accurately and calculate local values. Unfortunately, the translation of these principles into practice by economists and clinical trialists is slow.

The policy and professional conflict between the individual-patient ethic and population-health goals waxes and wanes and is often fought as a political battle. In the UK, "market" reforms to the National Health Service were seen by many as a way to reduce doctors' power, and evidence-based medicine can be seen as the medical empire striking back! Such conflict can go on for generations, wasting resources and, by depriving patients of care from which they could

benefit, creating misery. Therefore, the UK government, as the guardian of society's interests, must articulate the principles that are to determine the allocation of resources in the health-care system; currently the allocation criterion is need, which is generally interpreted as equity weighted health gain per unit of resource.

In the UK, the basis of resource allocation is efficiency (maximum health gain per unit of resource) weighted by equity goals, such as an awareness of the differential capacity to benefit of different socioeconomic groups and targeting resources to those who could gain most. But what criteria should be used to determine equity weights? The concept of a "fair innings" is useful to focus attention on both the principle and the implementation of policy.[18] In a society that decides a fair innings in 70 healthy years, some younger citizens would receive medical care, even if it was inefficient so to do. Thus, although the provision of care for a young child with haemophilia and HIV is inefficient, such care would be equitable because it would give the child something approaching a "fair innings". Such weights have to be carefully articulated in principle and measured in practice.

Once articulated, and if a population-oriented approach is accepted, the decisions made by clinicians about resource allocation could be compared with what is equitable. Thus, clinicians would be more accountable, and if they deviated from equitable and efficient practice, they would have to defend their choices and show that their behaviour was socially acceptable. Nonetheless, given the uncertainty associated with many clinical outcomes and cost estimates, the clinician would still be required to exercise judgment about

the value of the available evidence and the mean estimates it produces for patients in their care whose responses may vary.

Clinical freedom can never mean the freedom to do what is convenient and enjoyable irrespective of its costs and effects.[9,10] Social values must, in a publicly financed system, be balanced with clinical values to determine which patients will and will not get treatment. Neither the clinician nor the economist should dominate decisions about who will live in what degree of pain and discomfort and who, in extremis, will die.[19] Such choices are informed by the evidence base of cost-effectiveness, and determined by independent professional judgments. Clinicians should not feel threatened by this approach, but accept that evidence-based medicine is only part of the decision-making process about the allocation of resources. The power play inherent in some advocacy of evidence-based medicine creates unnecessary obstacles between clinicians and managed-care purchasers and frustrates their combined desires to serve well the patient and society.

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Health Economics: Has it fulfilled its potential?*

Editors' Commentary

Whilst Maynard argued strongly for the importance of generating and using cost-effectiveness data in decision making, he was concerned that this had encouraged an industry of health economists rolling out economic evaluations. The victory of the health economics perspective in how to ration health care resources led to health economics becoming the slave of the cost-effectiveness industry, feeding regulators such as NICE and also the pharmaceutical and device manufacturers seeking to get their products approved and funded. This distorted the role of health economics and only used a small part of the full repertoire of perspectives and techniques that economics could apply to health and health care problems. He argued here that health economists need to keep a strong link with economics as a discipline and apply themselves to a wider range of problems such as supply and demand, the workforce, incentives and behaviour change, pricing and equity.

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Introduction

Economic analysis as applied to health care is a relatively recent activity in the United Kingdom. It was stimulated by the crisis of healthcare expenditure which coincided with a number of critical reviews of the delivery and effectiveness of healthcare interventions in the late 1960s and the early 1970s. Economics provides a dimension that was missing from most clinical epidemiological work–that of efficiency–which is still not sufficiently emphasised by the "evidence based" healthcare movement of today.

This chapter explores the circumstances in which health economics arose and the conceptions of efficiency which were put forward by Cochrane in *Effectiveness and efficiency*.[1] We examine the limited contribution which the subdiscipline of health economics has made to health services research in the United Kingdom and point to the channelling of economics resources into economic evaluation at the expense of the broader areas of the financing, organisation, and delivery of health care. The overconcentration on economic evaluation of treatments reflects the lack of interest in health services research in the United Kingdom. To make the maximum contribution to the formulation and execution of health policy, health economists should return to "basics", forge closer links with economics, and adopt a broader perspective.

Effectiveness and efficiency in its historical context

Economic and social change

The period after the second world war and until the late 1960s was one of continuously high employment with relatively mild fluctuations in gross domestic product (GDP), employment, and unemployment (never exceeding 2.4% in

the United Kingdom).[2] This period was accompanied by relatively low rates of inflation and modest cyclical (stop-go) policies, and was characterised by what has been called a "Keynesian consensus" during which public expenditure and public employment increased. The cost of social services in Britain as a share of GNP rose dramatically from around 4% before the second world war to 29% in 1975.[3] In the 1960s expenditure on the NHS increased as a percentage of all social expenditure, partly fuelled by the biggest hospital building programme since the Victorian era.[4]

By the early 1970s the growth of public expenditure was seen to be unsustainable and it was thought that a crisis of funding would occur if costs continued to grow.[5] The policies of the Conservative and Labour parties were less convergent and the limited consensus began to fracture. The unchallenged rapid expansion of the welfare state in Britain and abroad came to an abrupt end in the mid 1970s[6] in the aftermath of the first oil crisis in 1973 which precipitated a sharp downturn in GDP and employment.

The ending of the postwar boom, the fracture of the Keynesian consensus, and the pressure to constrain public expenditure concentrated the thoughts of government on improving the efficiency of public services and what Thatcher later called "value for money". The "white hot technological revolution" of the Wilson Labour governments (1963-70) led both to a greater infusion of academics into government and the recognition, epitomised in the Fulton Committee report[7] on the civil service, of the need for greater quantification in public policy formation.

The increasing demands on public finances made by the development of the health service, technological change, and higher public expectations could not all be met and had to be modified in the light of the financial constraints imposed by the recession. This presented policy makers with sharper choices about how to allocate limited resources. Such choices needed to take into consideration the likely costs and benefits of alternative investments. Addressing these issues is at the very heart of economics. From the late 1960s onwards, the number of professional economists within central government increased dramatically from 25 in 1964 to 350 in 1975.[8] Both within the Department of Health (the then chief economic adviser, David Pole, was appointed in the early 1970s) and from academia (for example, Alan Williams, on secondment from York University to the Treasury, was deployed into the Department of Health to assist in the appraisal of the hospital building programme) economic argument was injected into a policy debate dominated previously by medical science and rhetoric.[9,10]

The increased expenditure on the NHS of the previous decade was mainly disbursed geographically according to historical patterns and used for services as determined by the medical profession (see below) with little analytical attention to the likely outcomes either in terms of absolute health benefits or their social distribution. Now the attention of economists, who hitherto had not been closely involved in healthcare policy issues, began to be focused on the uses of NHS expenditure in a significant way. In doing so they brought with them the analytical approaches and techniques developed in other areas such as investment appraisal, transport, and the environment.

Health care under scrutiny

The 1960s and early 1970s were also periods of social and political upheaval in which the organisation of society, distribution of political and economic power, and the mechanisms by which social relations were maintained came under sustained critique. The period was notable for the impressive concentration of intellectual re-examination and critique of health care and healthcare systems in developed countries.

Some doctors, historians, and social scientists questioned the contribution of health care in general and medicine in particular, to improving levels of health.[11-15] Illich[16] went further, drawing on the work of Cochrane among others, noting the medicalisation of society and accusing medicine of expropriating peoples' ability to deal with ill health and indeed of causing significant disease.

The unequal social distribution of health care was analysed by Cooper and Culyer[17,18] and Hart[19] among others, who showed that substantial inequality of health care remained despite over two decades of the NHS.

This period saw the coming of age of medical sociology[20,21] which, for example, critically examined the medical profession's monopoly over the definition of illness and other aspects of the role of doctors and the power they exercise.[22] The hegemony of the medical profession was also threatened by the increasing evidence of variations in clinical practice in Britain[23] and internationally[11] and that much clinical activity had not been shown to be effective. In the United States, this erosion of professional prestige and power also seen in

other (most notably the legal) professions was perhaps best signified by the rise in medical malpractice litigation.

The need to evaluate health care was appreciated increasingly by researchers and policy makers aided by the Donabedian framework for approaching evaluation.[24] By the early 1970s, the idea was growing that not only did doctors have to concern themselves with the efficacy of care and its acceptability to patients[25-27] but also economic efficiency.[1,28]

Cochrane's radical critique,[1] which raised his public profile and was for many the starting point of a re-examination of the way in which health services are delivered, was therefore very much of its time. It was one of the most concise and accessible summaries of several critical currents prevalent in the late 1960s and early 1970s.

Cochrane's view of economics

Whereas Cochrane's focus was on what is now termed efficacy, his book was permeated by statements about economics. His opening polemical statement in *Effectiveness and efficiency*[1] (p 1) was "all effective treatment must be free". He defined effectiveness as "the effect of a particular medical action in altering the natural history of a particular disease" (p 2). What Cochrane defined as effectiveness, as derived from randomised controlled trials in idealised settings, is what today is termed efficacy. Cochrane recognised that he was defining effectiveness as efficacy: he used the term ambiguously because he wrote that he disliked the word efficacy!

His definition of efficiency combined the notion of effectiveness (the effect of the intervention on patient health

in everyday settings) with the "optimum use of personnel and materials" (p 2). He argued (p 1) that "if we are ever going to get the 'optimum' use from our national expenditure on the NHS we must finally be able to express the results in the form of the benefit and the cost to the population of a particular type of activity, and the increased benefit that could be obtained if more money were made available".

Cochrane returned to economic issues throughout his book. He argued (p 26) that "BCG (TB vaccination) might be abandoned when it costs more to prevent a case of tuberculosis through BCG vaccination than to treat a new case of TB when it occurred". Later (p 43) he recognised the need for good cost data to inform hospital decision making and his discussion of home versus hospital confinements includes clear advocacy of the measurement of costs and outcomes: "what is needed is a series of measurements of the cost and effect of hospitalising various percentages of confinements".

The centrality of the economic component in decision making is clearly set out again towards the end of his book (p 83): "allocation of funds and facilities are almost always based on the opinion of senior consultants but, more and more, requests for additional facilities will have to be based on detailed argument with hard evidence as to the gain to be expected from the patient's angle and the cost. Few could possibly object to this".

Many in medicine continue to object, with varying degrees of explicitness, to this approach. Some advocates of evidence-based medicine explicitly argue that, at the level of the individual clinical encounter, the imperative is to

identify efficacy and to try to apply such knowledge to the care of individual patients, regardless of cost issues.[29]

The economists' argument is that choices should be informed by knowledge of an intervention's benefit and cost and that the limited budget of the NHS should be targeted at those treatments which give incrementally the greatest health gain per £ spent. This is what Sackett *et al* call evidence-based purchasing which they regard as the domain of the manager and not the clinician.

Cochrane did not agree with this position.[1] He argued (p 71) "surely priority should be given to finding out which treatments are effective and then ensuring that these treatments are efficiently given to all who need them". While this statement is somewhat ambiguous it probably means identifying what is "effective" (Cochrane's term for efficacy knowledge derived from randomised controlled trials) and then the evaluation of the efficiency of these interventions (that is, their costs and effects).

He found the notion of measuring effects or outcomes in terms of broader quality of life issues "repugnant" (p 77). At one level he believed that the task was too complex, describing the eased death of a Russian prisoner of war in his arms as the product of tender loving care which was difficult to quantify. However, he recognised the inevitability of outcome measurement as a part of the unavoidable process of prioritisation which he observed was executed then (and now!) "unconsciously and inaccurately".

An influence on his reluctant conversion to broader outcome measurement was Alan Williams, the York economist.

Cochrane and Williams had a very intense interaction in the early 1970s and each taught and was taught by the other. Williams convinced Cochrane of the need:

> "to quantify value judgements" and measure outcomes – that is, "if the saving of a man's life aged 20 and the restoration of normal expectation of life is rated 100, what number would be assigned to the case of a severe schizophrenic?" (p 77).

Cochrane's concern was the optimisation of output – "the division of the medical budget among all medical activities" (p 76). He recognised the need to identify, measure, and value both outcomes and costs at the margin. Thus:

> "the next stage would be to enumerate the various outputs at the present financial level of allocation of money. The outputs will vary from the prolongation of life through reduction of morbidity to home and hospital care for those who cannot look after themselves. These outputs...will then be costed and calculations made as to how the various outputs could be increased by, say, a 10% increase in financial allocation" (p 77).

For most of the succeeding 25 years Cochrane's economic arguments have been ignored by most clinicians. Clinicians gradually recognised the merits of rigorous evaluation of health services (particularly using randomised controlled trials) but were much slower to recognise the merits of including cost and quality of life elements in such trials. This continuing reluctance to adopt economic (cost) and generic, comprehensive, non-disease specific (quality of life) outcome measures which reflect patient valuations is, in part, a product of the continuing clinical conflict between

the doctor's obligations to the individual patient to provide all effective treatment, and the social perspective, which emphasises opportunity cost. In other words, the treatment of some patients deprives other patients of care from which they can benefit.

Cochrane's early dictum that, "all effective care should be free" was implicitly transformed in his book into an alternative dictum "all cost-effective care should be free". That clinicians, economists, psychologists, and others still fail to produce data to inform the provision of cost-effective health care by the NHS deprives potential patients of care from which they can benefit. This inefficiency is unethical for a public service because it fails to maximise population benefit from a cash limited publicly financed budget. Perhaps the severe threats to clinical autonomy and professional practice posed by managed care in the United States and more aggressive purchasing in the United Kingdom NHS will finally convince the profession that Cochrane was right and the production of enhanced survival and good patient care at least cost ideally depend on cooperation with health service researchers in general and health economists in particular. That such convictions were expressed by Cochrane[1] and Doll[28] and subsequently ignored has generated much interprofessional conflict and the maintenance of inefficiency in the NHS, the costs of which have been detrimental to patient welfare.

The early days of health economics

A leading architect of the subdiscipline of health economics was Alan Williams. His secondment to the Treasury in the late 1960s[10] led to his advocating the use of investment appraisal techniques in the public sector and him being

asked to review the hospital programme of the Ministry of Health. He sought to identify the criteria for these ambitious investments and found, unsurprisingly, that it was the principle of "Buggins' turn" constrained by a preference to replace the oldest hospitals first. There was no evidence that "old" was less cost effective than "new" but it was clear that new hospitals tended to be more physically isolated, and thus less accessible to patients, and more costly to run.

Williams sought to convince a Ministry dominated by medical practitioners that the relative benefits of old and new be identified in terms of cost and population health outcomes. He failed, and was told that "experience" was the best way of allocating hospital investments! However, as a consequence of these ministerial debates, he encountered Archie Cochrane, and was encouraged by him to develop his health outcome measurement work.

These efforts, and the development of the economic input to the Ministry's policy making, was encouraged by Dick Cohen (chief scientist 1972 to 1973) and Douglas Black (chief scientist 1973 to 1977), the latter choosing to invest government resources into a postgraduate training programme in health economics at York in 1976 and, in so doing, providing the personnel to develop the subdiscipline in the 1980s and 1990s.

Until the maturation of these York trained health economists, the subject area was dominated by researchers who converted from areas such as public finance (Williams), social policy (Culyer), and transport economics (Mooney). The intellectual issues addressed by pioneers such as these were largely related to economic evaluation. Williams (see

Culyer *et al*[30]) developed his interest in outcome measurement initially in the field of social indicators as a result of meeting Vincent Watts during his sojourn at the Treasury in the late 1960s. Watts at that time had been developing an index of crime seriousness in the Home Office and introduced Williams to his wife Rachel Rosser. The Rosser-Watts work led to the disability and distress matrix which was used subsequently by Williams, Kind, and Rosser and later by Williams[31] to "guestimate" cost per quality adjusted life years (QALY) for various interventions.

The Rosser inputs to the paper by Williams[31] are obvious but less obvious is the role of Martin Buxton and the Department's health economists. Buxton and his Brunel colleagues supplied Williams with data from their heart transplant study, an exemplary and very influential evaluation of an expensive and high profile therapeutic programme.[32] The economic advisers in the Department of Health provided Williams with technical inputs. Both they and Buxton are acknowledged by Williams but were unwilling to be coauthors for political reasons. The application of the techniques of economic evaluation led to an increasing volume of studies (see for example, the study of Piachaud and Weddell[33] working with Cochrane) and the annotated bibliography of the area by Culyer *et al*.[34]

Separately, economists addressed the issue of the geographical distribution of NHS resources. In the late 1960s an American student at Oxford published a complex analysis of the English hospital system which, inter alia, highlighted the inequalities in resource allocation: this study, which used intermediate outcome measures, stimulated Williams to focus on population health outcomes. This work, by Martin

Feldstein,[35] was complemented by the work of Cooper, Culyer, and others[17,18] and led the Labour minister, Richard Crossman, to conclude that these inequalities were the most significant NHS problems of the time.

It was left to his Conservative successor, Keith Joseph, to introduce the first crude resource allocation formula for hospital funding in England. The limitations of this were exposed by economists and epidemiologists and led, subsequently, to the development of the resource allocation working party (RAWP) formula in England and similar weighted capitation formulae in Wales, Scotland, and Ulster.[36] Recently, further work has led to a new (York) formula in England.[37]

Health economics, and health economists, have proved to be an "insidious poison in the body politic". Like many pharmaceuticals which are poisons if used in the wrong dosage, a balanced input of economics is essential for the maximization of individual and population health in a world of constrained resources. This input can be contentious – for instance, the continuous challenge by economists to decision makers to face explicitly the finite nature of resources and the inevitability of "rationing" has often antagonised clinicians because of the challenge to clinical autonomy.[38]

However, gradually antagonism is yielding to weary acquiescence in the need for explicit rationing criteria and the mobilisation of the knowledge base to direct scarce resource towards those patients who can benefit, in terms of health outcome, the most.[39] It is this which Cochrane articulated so nicely and which, regrettably, has been less than fully developed in the past 25 years.

The selective absorption of health economics into the research process

The research processes of medicine are insular and powerful, in no small part because of the level and targeting of funding by the state and the pharmaceutical industry at clinicians. Cochrane's book influenced his colleagues and led to an increased acceptance of randomised controlled trials. However, the medical professional tended to monopolise this work, in general focusing on the randomised controlled trials design, but largely ignoring costs and often adopting intermediate end points, although with some notable exceptions such as the RAND health insurance experiment.[40] For example, many studies evaluating cancer treatments adopted randomised controlled trials but rarely measured cost consequences, and used intermediate and incomplete end points such as tumour growth and survival, ignoring the measurement of the quality of survival. This was not what Cochrane advocated: he wanted measurement of efficacy, outcomes, and costs. Why was his advocacy so limited in its success?

There are no doubt many causes of the separation of economics from medicine in the decades since Cochrane. One reason is the inherent conflict between the individual ethic of doctors to do all they can for their patients and the societal ethic of economists who emphasise that a decision to treat one patient in the private sector is a decision to deny treatment to several other patients in the public sector. Medical training has generally offered only superficial consideration of these issues. Robust presentation of such issues by economists among many healthcare groups has sometimes led to economists being accused of being "doctor bashers" when their real concern has been to articulate

and facilitate the bridging of the individual patient-societal divide.[41]

This rationing controversy has absorbed much of the effort of economists and, as a consequence, the development of the subdiscipline of health economics in the United Kingdom has been distorted with too much effort being put into the broad advocacy of the techniques of economic evaluation and too little emphasis being placed both on methodological quality and development and on the broader application of the economics techniques to health policy.

The techniques of economic evaluation were well established by the 1960s and early 1970s.[42-45] Williams refined these techniques to produce the first checklist of questions to be used to interrogate and appraise economic evaluations in health care (table 7.1).[46]

This checklist has been developed by Williams' students and subsequently by colleagues.[47,48] It continues to be refined in part due to the continuing need to reiterate the "gospel" and convert reluctant clinical scientists to the techniques of economic evaluation. Thus, although the proliferation of such lists and guidelines on the presentation of evaluations is a useful dissemination activity, the marginal product in terms of intellectual coherence and the advance of the methods of the subdiscipline have been quite limited.

The prolonged efforts of health economists have over the years resulted in the techniques of economic evaluation being utilised in the way Cochrane advocated. The pharmaceutical industry, faced by cost containment policies which curtailed their profit growth, looked increasingly at the

TABLE 7.1 – *Williams ' checklist for appraising economic evaluations*

1	What precisely is the question which the study was trying to answer?
2	What is the question that it has actually answered?
3	What are the assumed objectives of the activity studied?
4	By what measures are these represented?
5	How are they weighted?
6	Do they enable us to tell whether the objectives are being attained?
7	What range of options was considered?
8	What other options might there have been?
9	Were they rejected, or not considered, for good reason?
10	Would their inclusion have been likely to change the results?
11	Is anyone likely to be affected who has not been considered in the analysis?
12	If so, why are they excluded?
13	Does the notion of cost go wider or deeper than the expenditure of the agency concerned?
14	If not, is it clear that these expenditures cover all the resources used and accurately represent their value if released for other uses?
15	If so, is the line drawn so as to include all potential beneficiaries and losers, and are resources costed at their value in their best alternative use?
16	Is the differential timing of the items in the streams of benefits and costs suitably taken care of (for example, by discounting, and, if so, at what rate)?
17	Where there is uncertainty, or there are known margins of error, is it made clear how sensitive the outcome is to those elements?
18	Arc the results, on balance, good enough for the job in hand?
19	Has anyone else done better?

From Williams 1974.[46]

use of the techniques of economic evaluation, apparently to demonstrate value for money but more often as a marketing device.[49] The implementation of the fourth hurdle–that is, addition of the cost effectiveness test in addition to the safety, efficacy, and quality controls which determine the acquisition of a product licence – in Australia in 1991 was also a landmark for the development of economic evaluation.[50] The decision of the Australians to test for cost effectiveness to determine Medicare reimbursement of new drugs, meant that the industry had to invest intensely worldwide in such techniques.

Whereas coordinated technology assessment work had developed significantly in the United States from the late 1970s (when the term QALY was first used), its development in the United Kingdom, despite the work of Cochrane and Williams, was slow and unfocused. The Medical Research Council had absorbed a tranche of Department of Health research funding (the Buller monies) but failed to apply this to health services research in a way which was recognisable as health services research to researchers. By the second half of the 1980s, the Department, recognising that they had been duped, applied pressure on the MRC and persuaded them to create a Health Services Research Committee (initially with no budget!). This Committee was dominated by clinicians, initially having token statistician and economist members who gradually grew in influence as it was recognised that all clinical trials might need economic (cost) and quality of life components.

Despite this rather narrow perspective, economists have helped to shape policy discussion about allocative efficiency in the NHS. For instance, the Department of Health limited

the development of the heart transplantation programme until the results of an evaluation were available. This excellent study formed a knowledge base for subsequent development of the programme and helped prevent the uncoordinated expansion of heart transplant capacity in the NHS.[32] Williams generated a generic methodology to inform investment decisions between different diagnostic and treatment programmes. Although the methods were embryonic, the cost per QALY estimates he produced focused attention on both methodological issues and the practicality of such an approach. The subsequent patterns of investment in coronary artery bypass grafts as opposed to transplants and in hip replacements are compatible with the results of this early study.[31]

These important studies demonstrated the potential power of economic techniques in the evaluation of clinical practice and their use in helping to shape policy to promote allocative efficiency. However, the early promise of economic evaluation techniques has not been adequately developed.

The theoretical and methodological base on which economic evaluation should rest has not progressed significantly despite the important consequences which such developments may have on policy. Furthermore, Udvarheyli *et al*[51] pointed out the variable quality of economic evaluations, Sheldon[52] raised questions about the use of modelling in health care evaluations, and Rigby *et al*[53] have demonstrated the poor quality of many health economic reviews. Only recently have serious attempts been made to produce recommendations on the conduct of cost effectiveness analyses to promote quality and comparability.[54]

Mugford[55] for example, recently listed a range of familiar issues in economic evaluations which remain controversial: treatment of indirect costs; discounting health gains and resource use; valuation of health benefits; choosing a correct comparator; selection of appropriate research design; translation of efficacy measures of randomised control trials into estimates of effectiveness; choice of the measure of effectiveness; when is it appropriate to use cost benefit analysis, in particular, when and how can willingness to pay be used; and how to use human capital measurement and other measures for indirect costs.

The application of economic techniques in health care have been slow and restrictive. For instance, it is only in the last year that a group has been commissioned to evaluate the cost effectiveness of the liver transplantation programme. On the other hand, economists have often invested considerable energy evaluating limited alternatives which reflect more the marketing interests of pharmaceutical companies rather than what may be the optimal intervention (therapeutic or preventive). For instance, the gastrointestinal complications of alternative oral non-steroidal anti-inflammatory drugs varies considerably and their cost effectiveness has not been demonstrated to be superior to paracetamol for arthritis. Reductions in gastrointestinal bleeds and costs may be more easily achieved through a change to first line paracetamol prescribing rather than the addition of (say) supplementary therapies.[56] Unfortunately only the latter have been evaluated.[57]

There is a risk that the pecuniary interests of the pharmaceutical industry are leading to a narrowing of the focus of economic evaluations and thereby a distortion of

resource allocation in the NHS. Only if economists harness their skills to the broader interest of the health service will economic evaluations necessarily promote efficiency.

The increasing importance of demonstrating cost effectiveness, particularly in the pharmaceutical area, and the use of national guidelines which link reimbursement decisions to evidence of relative cost effectiveness, ironically may have had a perverse effect on the ability of economics to contribute more broadly to important health service decisions. By absorbing a disproportionate amount of economists' time, which is scarce (and also inflating salaries), it has diverted these resources from activities which are central to the efficient provision of health care in all societies.

Health economists have won the battle to make people see the relevance of the results of economic evaluations to decision making, but in doing so they have contributed to their professional isolation from the corpus of economic analysis and in some ways reduced the ability of the NHS and universities to afford to harness these skills in their broader application to a wide range of analytical challenges.

It is no surprise therefore that clinical trials with economic and quality of life components are what many clinicians think are the sole potential contributions of economics to health services research. In fact, the role of the economist is much broader, encompassing behavioural issues such as incentives, the demand for health and health care, and the supply of labour.

The potential contribution of economics to health services research

The resistance of the clinical establishment to the use of the techniques of economic evaluation has led to health economists investing heavily in dissemination and trials, many of which are for drugs. The opportunity cost is that their expertise has not been available to tackle the many other methodological and applied areas in which the economists' "tool kit" could produce new knowledge to inform clinical and policy choices.

The areas in which economics can contribute is usefully considered according to the scheme devised by Williams in the early 1980s and used in the bid to the Department of Health and Social Science Research Council to acquire initial funding for York's Centre for Health Economics (figure 7.1). It is evident from this that economists can investigate a variety of policy issues – for example.

Supply of health care

What determines providers' behaviour? How should doctors be paid? How should the hospital capital market be organised (for example, the relative balance of public and private finding)? Does the creation of hospital trusts affect behaviour? What is the effect of changing the skill mix on the delivery and outcomes of primary and secondary health care?

Demand for health and health care

What influences the consumption of patients (for example, time costs, prices, income)? What is the impact of user charges on the consumption and distribution of drugs and dental services? What are the determinants of health related

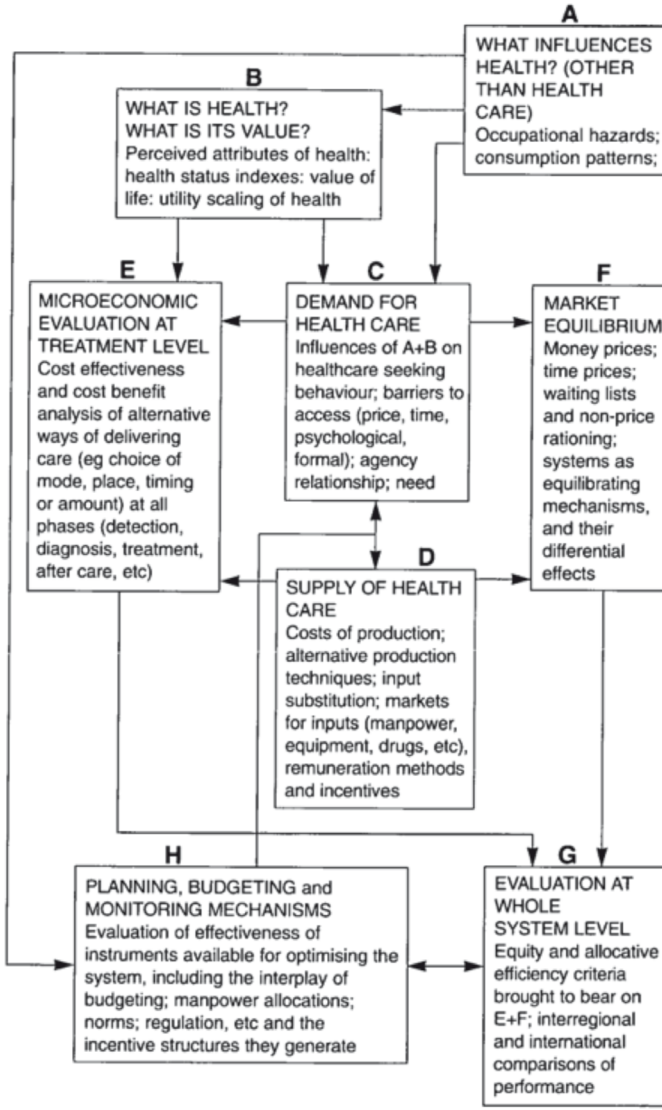

FIG 7.1 – Health economics: structure of discipline

behaviour such as tobacco consumption and the use of illicit drugs?

Market equilibrium or methods of allocation

What are the effects of alternative methods of allocating health care services to competing needs (prioritisation)? It was remarkable that the first critique of the NHS internal market pricing rules came from someone who was not a health economist but a lecturer in land economy.[58] She pointed out that the NHS rule that price should equal average cost would inhibit competition (the principal aim of the reforms). In competitive markets, prices tend to vary according to the size and duration of contracts.

Equity and allocative efficiency

Whereas the NHS has emphasised the equitable allocation of resources by the development of national formulae based on epidemiological type measure of need (morbidity and mortality), little attention has been focused on ensuring equity in "health gain" which is related to ability to benefit. Economics can, therefore, make the necessary link between equity issues and efficiency but in fact little work has been done.

These and the other issues illustrated in figure 7.1 are all ones in which there is a body of economic knowledge which has not been thoroughly applied in the United Kingdom. It is remarkable how an enormous social experiment such as the internal market in the NHS, was created with all too little recourse to the knowledge base and implemented without exploitation of relevant and available techniques of appraisal. Williams[59] listed over 60 researchable questions arising from the Thatcher reforms and most of these questions remain

ignored by the bulk of the health economics profession in Britain.

The behaviour reflects both the lack of a "customer" for this type of research (before and during the NHS reforms) and the lack of interest in this field by the bulk of health economists in the United Kingdom as opposed to their United States counterparts who focus more on market regulatory issues.

Although Cochrane did not allude to the topics outside economic evaluation, he was concerned with incentive issues: if you can lead the clinician horse to the waters of new knowledge, how could you make him drink? The considerable research effort on implementing the results of health research has relatively ignored the potential role of economic incentives (monetary and non-monetary).

Conclusions

Economics, through the subdiscipline of health economics, has not fulfilled its potential role in contributing to the development of health services research in the United Kingdom. This reflects both the diversion of resources and intellectual capacity into the narrow confines of the evaluation of clinical interventions, an area which has become increasingly appropriated by commercial interests. Economists in their eagerness to disseminate the importance of economic evaluation have often found themselves the hand maidens of clinical trialists. As the NHS research and development programme developed, with its insistence on the incorporation of economic analysis in health technology assessment, economists became inundated with requests to act as cost accountants on other peoples' studies. Such offers, because they represented a coming of age of economic

evaluation and because they generated cash, were difficult to refuse.

The Government's research and development programme, being narrowly focused on clinical interventions, provided little or no funding for the broader elements of health services and health systems research. As a consequence there was insufficient funding of major policy initiatives such as the creation of the NHS internal market. The lack of a broad health services research perspective in the United Kingdom was noted by Cochrane in his autobiography (pp244-6).[60]

The blinkered vision of health economists who ignore issues other than narrow economic evaluation and "coat tail" government, industrial, and clinical imperatives, may have rendered many incapable of applying economic analytical techniques to the broader issues of health policy. The regeneration of health economics in Britain requires a reorientation. Practitioners may need to return to basics and with it a much closer relationship with academic departments of economics. The desirability of specialisation by economists into health economics at the predoctoral level is questionable. Health economists, while seeking to colonise the clinical mind[41] (chapter 2, pp 10-29) may have lost their disciplinary head!

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14

The economics of alcohol abuse*

Editors' Commentary

An example of Maynard showing what the economics discipline can bring to health-related problems (over and above economic evaluation) was his work over many years on the economic aspects of addiction and addiction control and regulatory policies. He contributed significantly to a more rational analysis of drugs and alcohol. In the first of two papers in this area, he summarised some of the economic aspects of alcohol consumption and abuse. He distinguished the private and social costs of alcohol and suggested how taxation levels should reflect both cost elements. He identified the need for much better epidemiological and associated data to inform taxation policies. His early work in this area was taken up by others and the use of pricing to moderate alcohol consumption is now under active consideration as a policy intervention in many parts of the world, and, for example, legislation on minimum unit pricing has been approved by the Scottish Parliament.

The second paper summarises a report for the UK Home Office which explored the economics of illicit drugs. Against a background of ideological, data-light and somewhat alarmist

* This chapter first appeared as Maynard, A and Keenan P. (1981). "The economics of alcohol abuse." *British Journal of Addiction*, 76(4): 339-345.

debates about drugs, it provides a clear-headed analytic approach looking at the likely cost-effectiveness of several alternatives to reducing illicit drugs use, focusing principally on supply side measures such as law enforcement to reduce importation and then distribution. It shows how, in order to develop an efficient policy response, a better understanding is needed of the effectiveness of various measures on the supply of drugs and the consequent impact on their price, along with data on the price elasticity of demand for different drugs. It should not simply be assumed, for example, that increased investment in law enforcement will have a significant impact on reducing illicit drug consumption. The report lays out a research agenda to obtain reliable data on prices, inputs, outputs and outcomes and to use those in more robust econometric models – an agenda which has subsequently been highly influential.

Summary

The paper examines economic aspects of alcohol abuse, particularly the social costs of alcohol abuse and the taxation of alcohol. The social costs section reviews the available literature and sets out the relevant costs, discussing how the work could be extended and improved. The next section explains the economic rationale behind the taxation of alcohol and its relationship to social costs. The paper then examines the effects of alcohol taxation on consumption and how this link is estimated. Some estimates are given from the literature showing how changes in the price of alcohol and in incomes can affect consumption. The paper concludes that there is much research work to be done on the economic aspects of alcohol abuse.

Introduction

The recent past has seen the publication of various studies and comments on economic aspects of alcohol abuse: for examples, see [1, 2 and 3] and the Chancellor of the Exchequer raising excise taxes on alcohol beverages. The purpose of this paper is to appraise and elaborate some of this recent literature, in particular that about the social costs of alcohol abuse, and to analyse the economics of alcohol taxation.

1. The Social Costs of Alcohol Abuse

Two classic studies, one from the U.S.A. and the other from the United Kingdom, have sought to quantify the costs to society of alcohol abuse.[1,4] The objective of these studies has been to quantify the total resource costs to society of alcohol abuse. These costs are partly private and partly social: the effects of an individual's consumption of alcohol on his health, his social and family life, and on his productive potential can be distinguished from the effects of such consumption on society (i.e. people other than the individual consumer) such as the relations who he may abuse and the neighbours who he may harm.

A further distinction can be made about the incidence of the costs of alcohol abuse i.e. who bears the burden in terms of foregone resources of alcohol abuse? From Table 1 it can be seen that there are a variety of public and private institutions which bear the burden of the social costs of alcohol. In the public sector, the Department of Health and Social Security has to bear the resource costs of repairing the abuser if he enters the NHS. The DHSS also pays out social security payments to abusers if they are out of work but these payments are not resource hosts but transfer payments: the 'dole' does not use resources but merely redistributes them.

The Home Office and the local authorities bear the costs of the abuser's criminal activity. The Department of Transport, the Home Office and the local authorities meet the resource costs of the abuser's deviance in the transport system, on road, rail, on the water, or in the air.

Table 1 A taxonomy of the costs of alcohol abuse

	Types of Cost	
Bearer of the Cost	Private Costs	Socia Costs
Public Sector		
DHSS		X
Home Office		X
Department of Transport		X
Local Authorities		X
Private Sector		
the abusers' firms		X
the abusers' households		X
other individuals		X
the abusing individual	X	

Notes: *Private costs fall on the individual consumer. Social costs fall on the rest of society*

The private sector costs consist of reduced productivity (e.g. lower productivity on the job, accidents, perhaps theft at work, and sickness absence) due to alcohol abuse in the work place; this abuse if it results in injury, may have public sector effects also of course. These costs, which are borne by firms, can be reduced by the replacement of abusers by sober and formerly unemployed workers. The resource opportunity cost of this transfer may be minimal in a world of 12 per cent unemployment; the replacement will have only minor effects on transfer payments as the abuser replaces the sober man at the DHSS desk. Other private sector costs

are imposed on the individual abuser's household: he or she may threaten their spouse, terrify their children and deprive both spouse and children of the resources the abuser requires to buy alcohol. Other individuals in the private sector may also suffer from the abuser's behaviour if he or she damages or steals their property, including their bodies! Some of these costs are intangible (non-marketed) and difficult to quantify but must not be neglected.

The costs to the individual of his abuse, his pain and suffering as he damages his or her body, are also intangible elements which are difficult to quantify.

The opportunity cost to the individual of his consumption may or may not be viewed as social abuse. If we assume his consumption decision is the most satisfying option available to him, it could be argued that this is a measure of the benefit to him, and it is not a cost: i.e. the effects of high consumption levels may lead to harm to his person but these do not affect me. However, if in a caring society, your consumption of alcohol on the park bench makes me worry about your future health, it could be argued that your behaviour is inflicting costs on me. A measure of these costs could be included in the social costs calculation if they can be quantified.

This conclusion assumes that the consumer is rational and sovereign. However by its nature alcohol is addictive and an alternative view might be that the individual is no longer the best judge of his own welfare: he may be using resources irrationally. Thus society might judge such resources, in part or in whole, to be used inefficiently and hence be a cost to it i.e. the opportunity costs of private consumption are, due to addiction, part of the social costs of alcohol consumption.

The total social costs of alcohol abuse would include all the public and private sector costs in the social costs column of Table 1: all these elements represent foregone opportunities or resources to society. Private outlays may or may not, in whole or in part, be viewed as social costs. The estimation of social costs requires detailed knowledge of the number of abusers, their patterns of NHS consumption, their criminal activities, their misbehaviour in the transport system, their reduced work productivity, absenteeism and sickness absence, their behaviour patterns concerning their families. Usually this detailed information is not available and the social cost work is thus of its very nature, a 'guestimate'.

Thus Holtermann and Burchell[1] estimated six elements in their social cost study, providing for each element a low and a high estimate of its value. The major element in this calculation is the loss of output due to alcohol abuse, £331mn (low) and £538mn (high) in 1977. The principal components of this sickness absence (£157mn and £259mn) and premature death are measured in terms of discounted earnings foregone (£138mn and £220mn).

The second element in the Holtermann and Burchell estimates is the cost of health services (£38mn and £52mn), of which the inpatient costs are the largest elements (£35 and £50mn). Some of the other components in this element seem low (e.g. £300,000 for GP visits) or are unknown (e.g. local authority social services).

The final four elements in the DHSS calculations of social cost contain many question marks, reflecting the fact that data are not available to estimate the magnitude of the elements. The cost of road traffic accidents due to alcohol

abuse are estimated to be £49mn in 1977 prices and no estimate is provided of the opportunity costs associated with damage to property in the home or at work due to fire or physical assault. The cost of police activities resulting from alcohol abuse provide some estimates, e.g. £7mn for road traffic accidents, but offers no estimate of the costs of other criminal acts. Similarly information about the prison service and the judiciary are incomplete or absent.

The outcome is not due to the defects of Holtermann and Burchell's work, it arises from the lack of data from which estimates of the relevant magnitudes of social cost can be made. The authors offer, emphasising that their estimate is tentative and incomplete, a social cost of alcohol abuse figure of £428mn (low) to £650mn (high) in 1977.

The study is pioneering and clear. It could be elaborated if future research could provide estimates for the elements currently with question marks against them. It can be updated by following the Holtermann and Burchell methodology. Such an updating raises the estimates of social cost in terms of March 1981 prices to £698.42mn (low) and £1064.12mn (high).[5]

2. The Economics of Alcohol Taxation

(a) The efficient level of alcohol taxation

An estimate of the social cost of alcohol abuse does not in itself provide clear guidance for the development of policy. A variety of policy instruments might be used to affect alcohol consumption: health education programmes, legislative changes which affected licensing hours or the number of outlets, treatment policies, and the use of fiscal (taxation) policy. This section will concentrate on the latter element as

it is the subject of some contemporary debate: for examples, see[2,3,6] with pressure being placed on the Chancellor of the Exchequer to link the real cost of alcohol to the retail price index by annually adjusting taxation levels.

The conventional (neo-classical) economic paradigm predicts that an individual consumer will consume any good or service such as alcohol up to that point where the additional benefits from consuming another 'pint' (or whatever measure) are equal to the price paid. In a zero-tax world, the price paid is a measure of the resources used to produce that pint. However, because of the social costs associated with alcohol consumption, this price does not reflect the full opportunity costs of that consumption to society. The efficient level of alcohol consumption is not zero but that point where the additional benefits of consuming another pint are equal to the production costs and the full social costs of that pint. So the optimal level of taxation is where the tax (value added tax plus excise duty) on the pint is equal to the social cost associated with its consumption (i.e. the tax on the marginal unit should equal its marginal social cost, assuming that the production costs were equal to the price before tax).

The translation of this principle into taxation policy is not easy. The Holtermann and Burchell estimates in their original form or updated[1,5] could be divided by an appropriate consumption denominator to acquire an estimate of average social costs. However it is unlikely that average costs will be equal to the cost of an additional marginal unit (i.e. the marginal social cost). If the marginal social cost is equal to or less than the average social cost, it could be argued that the present taxation of alcohol is excessive, the tax yield (£2000mn) exceed the Holtermann-Burchell

(high) estimates by a factor of over 3 in 1977. However this conclusion is inappropriate for two reasons. Firstly the Holtermann and Burchell estimates are incomplete: more basic epidemiological data are required if we are to estimate the values of those variables at present described with question marks. Secondly, if the marginal social cost exceeds the average social cost, a 1% increase in consumption will lead to an increase in social costs in excess of 1%.

Stage I

e.g. if average cost is £5 if

consumption is 100 total

cost is £500

Stage 2

if marginal cost is £10

and if consumption is 101

then total cost is £510 (500 + 10)

i.e. a 1% increase in consumption has increased total cost by 2%, and the marginal cost (£10) is greater than the average cost (£5.05).

So if marginal social cost exceeds average social cost, the Holtermann-Burchell study indicates that alcohol may not be over-taxed. However, we have no precise information about the relationship between increases in consumption and social costs (or the 'harm' associated with the increased consumption). There seems little doubt that there is a positive relationship between per capita consumption and social costs. However the precise nature of this relationship is unknown. The epidemiological art is such that such vital

questions about average and marginal costs have still to be answered.

Even if the precise nature of the marginal social cost of alcohol at different levels of consumption was known this information would not be the only determinant of taxation policy. The State desires to raise taxation to fund its activities, seeks to redistribute income to the poor, wishes to manipulate the economy to achieve pricing, employment and growth targets and is obviously concerned about the potentially distortive effects of taxation on investment and consumption. Thus revenue objectives, equity objectives and efficiency objectives exist and may over-ride the dictates of efficiency in the taxation of alcohol (i.e. equating tax to marginal social cost).

For instance the marginal social cost calculus might indicate increased taxation of alcohol but what would be the 'equity effects of this, i.e. would such taxation have a seriously deleterious effect on the purchasing power of the poor? The Family Expenditure Survey seems to indicate that expenditure on alcoholic drink as a percentage of total household expenditure seems to rise with income, i.e. higher income households spend more proportionately on alcoholic drink than poor households. It seems that as income rises consumers shift out of beer and into the consumption of wine and spirits, i.e. they consume their alcohol in more expensive forms but their consumption levels do not rise in terms of standardised units.[7]

Increasing the tax price of alcohol in line with marginal social cost, if it was known, could also have distortive effects. In particular an increase in the price of legally produced and

marketed alcoholic drink might induce both an increase in `home brewing' and in the incentives of the illegal production of liquor in commercial quantities.[8]

So even if the marginal social cost could be identified by social cost investigations, the appropriate level of taxation might not be that which is equal to this estimate of social loss.

(b) The effects of alcohol taxation on consumption

Whilst the epidemiologists have not yet managed to define the link between consumption and 'harm' (or social costs), economists have been providing a good body of material quantifying the link, using time series regression analysis, between income and price on the one hand, and consumption on the other. The usual equation, in a simplified form, that is estimated using time series data is as follows:

$$D_d = \alpha_1 + \alpha_2 Y + \alpha_3 P_d$$

D_d = demand for drink in logarithmic form and will be estimated separately for different types of alcohol, e.g. beer, wine and spirits.
P_d = price of the drink in logarithmic form, deflated to take account of inflation (changes in the retail price index)
Y = income in logarithmic form, usually proxied by consumption expenditure (i.e. capacity to consume)
α_1 = constant term
α_2 = income elasticity of demand
α_3 = price elasticity of demand

The quantity (Dd) variable may be measured in expenditure or quantity terms. The expenditure elasticity shows the responsiveness of consumer spending with respect to changes in the buyer's purchasing power (Y) and in the price of the commodity (P). The quantity elasticity refers to the physical volume consumed and its responsiveness to alterations in price and in income.

The economist introduces the P and Y terms because he wishes to distinguish between changes in consumption which can be related to changes in the relative price of alcoholic drink (P) (the substitution effect), and changes in consumption which can be related to alterations in income levels (the income effect). Some estimates for price and income elasticities are given in Table 2. From these data it can be seen that the price and income elasticities are low for beer and higher for wine and spirits. For instance the Central Statistical Office[9] estimates indicate that a 1 per cent increase in the price of beer, wine and spirits respectively will reduce the demand for this drink by 0.2, 1.1 and 1.6 per cent respectively. The income elasticities for the same three types of drink indicate that a one per cent increase on income will lead to consumption increases of 0.7 per cent for beer, 2.5 per cent for wine, and 2.2 per cent for spirits. In the last 20 years price reductions and income increases have combined to induce an increase in the consumption of alcoholic beverages.

Table 2 The price and income elasticity of demand for alcoholic drinks

		Elasticities	
Study	**Beverage**	**Price**	**Income**
Stone and Rowe (1958)	beer	-0.53	0.68
	other drink	1.52	3.23
Rowe (1965)	all drink	-0.69 (1900)	1.54
	and tobacco	-0.26 (1938)	1.23
		-0.18 (1960)	0.74
Central Statistical	beer	-0.2	0.7
Office (1980)	wine	-1.1	2.5
	spirits	-1.6	2.2
Duffy (1980)	beer	insignificant	0.8 to 1.1
	wine	-0.65 to -0.87	2.5
	spirits	-0.8 to -1.0	1.6

Note: The references are listed (10), (11), (9) and (12) in the bibliography

Relatively little is known about cross elasticities of demand, i.e. the extent to which increases in the price of, for instance, beer affects the demand for wine or spirits. However the work of Johnson and Oksanen[13] and Lau[14] provide some estimates of cross elasticities.

There are several implications of these estimates. Firstly if the policy objective is to stabilise the consumption of alcohol, in periods of high income growth it will be necessary to raise the price of alcohol by an amount in excess of the rate of inflation.

Secondly the data in Table 2 are for Britain and these estimates are likely to be unique to this country and may change through time: note Rowe's findings on the elasticities for different years (Table 2). Furthermore different patterns of consumption and prices may generate different estimates of elasticities. The most popular beverage, e.g. beer in the U.K. and wine in France, Italy and Spain, seem to have the lowest price elasticity. Conversely, novel drinks, e.g. wine in the U.K. (and whisky in France?), seem to have higher price elasticities. Thus the value of the price elasticity estimate seems to be linked to the market share of the product: the greater the market share, the lower its price elasticity. If the British become more affluent, their consumption of wine may increase and its price elasticity may fall.

The effects of price and income changes on the consumption of alcohol will be influenced by expenditure on advertising. McGuinness[15] has shown that a reduction in advertising expenditure of one per cent would reduce consumption by 0.22 per cent approximately (this is a mid-point illustrative estimate in McGuinness' work). Clearly the limitation of

advertising, may be a potentially productive way to reducing the use of alcohol.

Overview

The economic aspects of alcohol abuse have been investigated to varying degrees. The social cost work has progressed to a limited extent, the limit determined by the present inadequate levels of epidemiological knowledge. The economic attributes of alcohol taxation have been investigated quite extensively and these results can clearly inform public debate about alcohol policy. Much work remains to be done, e.g. evaluating the cost effectiveness of treatment programmes and health education programmes, and it is to be hoped that the economist and the alcohologist can cooperate fruitfully in these areas in the years to come.

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15

Economic aspects of the illicit drug market and drug enforcement policies in the United Kingdom: introduction*

Introduction

Current trends in illicit drug use in the UK are a source of considerable concern. The Government's concern was reflected in a speech to the London Diplomatic Association in 1983 by the then Home Secretary, Leon Brittan. "Drug abuse", he commented, "is a disease from which no country and no section of modern society seems immune. Stamping it out will be slow and painful. It requires co-operation between Governments, law enforcement agencies, professionals, schools and families. The rewards are great if we succeed – and the price of ultimate failure unthinkable" (Home Office, 1985a, page 3). The Home Affairs Committee has used even stronger language. In their Interim Report on the Misuse of Hard Drugs (Home Affairs Committee, 1985a) the Committee described the prospect of South American cocaine exporters targeting their supplies on the British market as "the most serious peacetime threat to our national well-being" (Home Affairs Committee, 1985a, page iii).

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The Government's response to the apparent growth in drug misuse has been to increase its expenditure on anti-drug measures. These include law enforcement (HM Customs and Excise and the police), treatment, rehabilitation and prevention, as well as assistance to producer countries for law enforcement and crop-substitution programmes (both directly and through the United Nations) (see Home Office, 1985a). The Home Affairs Committee (1985) recommended that Government expenditure on drug control measures be increased yet further. They urged that there be intensified law enforcement against drug traffickers, stiffer penalties for traffickers of 'hard' drugs and seizure of their assets. It also urged the Government to consider use of the armed forces for surveillance operations against illicit importers.

None of these recommendations is based on any firm evidence that their adoption would represent an efficient deployment of resources. Nor indeed is there any firm evidence that the particular 'mix' of enforcement (and non-enforcement) measures in the current strategy for tackling drug misuse represents the best possible mix, in the sense that it yields the largest possible benefits in terms of reductions in illicit drug consumption. That the best mix may not have been found has been suggested in various quarters (see e.g. Stimson, 1985).

The fundamental problem facing the Government in its deliberation on drug control measures is the paucity of information on the subject. The current debate is characterised more by rhetoric than hard facts. Nowhere is this more true than in discussions of the 'size of the problem'. Delegates to a 1984 British Medical Association Conference suggested that drug misuse had become so widespread that it

was no longer 'an epidemic' but rather 'a plague' (Hansard, 13.7.1984). The facts suggest otherwise. In 1982 there were 142 deaths associated with controlled drug misuse (Office of Population Censuses and Statistics, 1983). In the same year an estimated 5,000 deaths resulted from alcohol misuse (McDonnell and Maynard, 1985) and at least 100,000 persons died prematurely from cigarette smoking (Royal College of Physicians, 1983).

The debate concerning the wisdom of current drug enforcement policies has also been characterized more by alarmist rhetoric than hard facts. The trade union representing uniformed Customs Officers has argued that "the present level of customs controls in the United Kingdom can no longer be regarded as effective" (Society of Civil and Public Servants, 1985, page 1) and that the policy of reducing the numbers of uniformed officers has been "the height of irresponsibility by this Government" (The Times, 16.4.1985). The use and interpretation of figures quoted by the trade union in support of its claim for additional staff are, however, viewed by the Board of Customs and Excise as highly misleading (cf. Home Affairs Committee, 1985b).

1.2 Objectives and structure of the report

(i) to establish what is known about the economic 'parameters' of the UK illicit drug market prices, quality (purity) and consumption. The report focuses on the markets for heroin, cocaine and cannabis and investigates how these markets have evolved since 1989;

(ii) to review the literature on the economics of drug enforcement;

(iii) to undertake some preliminary economic analysis of drug enforcement policies in the UK; and

(iv) to make suggestions for future research

The report is organized as follows. Chapter 2 discusses the 'welfare economic' foundation of drug enforcement policies. It introduces the idea of 'external costs' of illicit drug consumption – costs imposed by drug misusers on third parties such as health care costs, lost productivity and distress to others – and outlines the various factors to be borne in mind when evaluating alternative means of government intervention designed to reduce these costs. It emphasises the distinction between the problem of ensuring that drug enforcement agencies operate in a cost-effective fashion and the problem of determining the efficient scale of operation of each enforcement agency at the various levels of the market. The type of question considered in the discussion on cost-effectiveness is: ought HM Customs to be devoting a greater share of its budget to intelligence work and less to the employment of static controls at airports and ports? The type of question considered in the discussion on the efficient scale of activity is: ought more of the Government's drug enforcement expenditure be devoted to enforcement at the import level of the market and less on enforcement at the retail level?

Chapter 3 provides a review of the literature on the economics of drug enforcement. It begins with the theoretical literature. Much of this has been orientated towards the issue of

whether supply-side enforcement (measures aimed at drug traffickers, rather than users) has any beneficial effect on illicit drug consumption. It also discusses the idea of the effects of enforcement aimed at one market 'spilling over' into other markets: enforcement aimed at heroin dealers, for example, may have repercussions for the cocaine market. Chapter 3 also reviews the few studies that have been undertaken aiming to estimate the effects of alternative enforcement measures on illicit drug consumption. Influential amongst these is the report by Polich *et al.* (1984), which concluded that in the United States even large increases in drug enforcement expenditure – at any level of the market – would be unlikely to reduce consumption of cocaine and marijuana by any significant amount.

Chapter 4 examines what is known about the economic parameters of the UK illicit drugs markets. It presents data on prices, purity and – in the case of heroin – consumption for the years 1979-84. It also discusses the limitations of the existing data.

Chapter 5 presents preliminary economic analysis of the drug enforcement activities of HM Customs and Excise. It presents data on manpower and expenditure for the years 1979-85, much of which has not previously been published. Chapter 5 also discusses the various possible measures of 'output' of HM Customs and Excise drug enforcement work and how these might be used to analyse cost-effectiveness. The chapter goes on to consider the effects of Customs drug enforcement activities on the 'final output' of drug enforcement policies – reductions in illicit drug consumption.

Chapter 6 presents a similar analysis to that undertaken in Chapter 5 for the police. It presents data on manpower and expenditure on drug enforcement by the police and discusses the various possible measures of the 'output' and how these might be used to examine the cost-effectiveness of their work. The chapter then goes on to consider the effects of police drug enforcement work on illicit drug consumption and the effects of changes in the law relating to length of prison sentences for drug traffickers and seizure of their assets, on the retail prices of illicit drugs.

The final chapter – Chapter 7 – presents a list of suggestions for future research, as well as a list of data requirements for this research.

1.3 Summary of the report

The welfare economics of drug enforcement policies

The economic rationale for government intervention in the illicit drug market appears to be that drug misuse imposes costs on non-users, in the form of distress to others, health care costs, drug-related crime and lost production. These costs are known as 'external' costs in economic theory. The mere existence of such external costs does not, however, ensure that society as a whole stands to gain from their elimination. Reducing illicit drug consumption through law enforcement and prevention programmes is *itself* a costly exercise and these costs need to be compared to the benefits such programmes yield in terms of reduction in the external costs of drug misuse.

The planning problem facing the Government is to allocate its 'anti-drugs' budget in such a way that the benefits from

the anti-drugs programme as a whole – defined in terms of reductions in illicit drug consumption – are as large as possible. This problem can be broken down into two stages: (i) the problem of ensuring that the enforcement agencies operate in a cost-effective manner at each scale of operation, and (ii) the problem of determining the efficient scale of operation for each of the various agencies. An example of the type of question considered under (i) is: ought HM Customs be devoting more of its budget to intelligence work and less to static controls at ports and airports? This is a question of cost-effectiveness. An example of the type of question considered under (ii) is: ought the Government to be devoting more of its budget to enforcement at the import level of the market and less to enforcement at the wholesale level? This is a question of the efficient scale of activity of enforcement agencies and concerns the appropriate level of expenditure on HM Customs and the police drug squads.

An investigation of the issues of cost-effectiveness and efficient scale of activity requires estimates of the relationship between the enforcement agencies' inputs and outputs. Inputs include manpower and equipment. Two types of output can be distinguished: a final output (defined in terms of reductions in illicit drug consumption) and an intermediate output (number of seizures, amount of drugs seized, arrests of traffickers etc.). The size of an enforcement agency's intermediate output depends on its own activities and on external factors affecting the size of the drugs market (conditions in producer countries etc.), The size of its final output will depend on its own activities, but also on many other factors, including the activities of other agencies in the criminal justice system, notably the courts and prisons. Because of this it may be more satisfactory to use measures

of intermediate output when investigating the issue of cost-effectiveness.

The economics literature on drug enforcement policies

Much of the economics literature on enforcement policies is of a theoretical nature. Early studies argued that 'supply-side' enforcement measures (measures aimed at traffickers) were likely to be futile, since the demand for illicit drugs (especially addictive drugs) is likely to be unresponsive to price changes. It was argued further that such measures may be counter-productive because they will tend to result in increased expenditure on drugs and therefore higher drug-related crime (addicts engaging in theft to support their 'habit'). The early literature concluded that demand-side measures (arrests of users, education etc.) would be more likely to reduce illicit drug consumption and would have the added advantage of reducing–rather than increasing–the level of drug-related crime.

This conclusion has recently been challenged on the grounds that the demand for illicit drugs may not be so insensitive to price changes as was previously thought. One reason is that users of certain drugs, such as heroin, tend (or are at least able) to switch to other drugs as the price of heroin (or whatever) rises. The existence of substitutes means that the demand for some drugs may not actually be so 'price-inelastic' (i.e. unresponsive to price changes). Other writers suggest that demand may be 'price-elastic' at least over some price ranges. At low prices some of the market demand will be from occasional users, whose use may be expected to drop (or even cease) as the price rises. Thus, even if addicts' demand is price-inelastic at low prices, the market demand

need not be. At high prices addicts' demand may be price-elastic, since as prices become very high, they will find it harder and harder to fund their 'habit'. They may be more likely to be detected when engaging in theft and therefore more likely to be removed from the community. They may also be more likely to enter treatment programmes voluntarily as finding money for illicit supplies of drugs becomes more difficult. The upshot of all this is that supply-side law enforcement may, after all, have a role to play.

Some writers have suggested that price increases and price reductions may have asymmetrical effects on the demand for drug use. When prices are falling, new users may develop a 'habit', which they cannot 'kick' when prices rise again. The implication of this is that it will be harder for the enforcement agencies to reduce consumption through supply-side enforcement measures than one might conclude merely from an examination of the responsiveness of demand to price reductions. Another complication is the possibility of spillover effects of enforcement into other drug markets. If, say, heroin and cocaine are substitutes for one another, intensified supply-side enforcement in the heroin market could increase both the level of consumption of cocaine and its price. There is a danger, therefore, that intensified supply-side enforcement in one drug market merely results in the problem being shifted into another market.

It has been suggested in the literature that measures aimed at importers are likely to yield larger net benefits than measures aimed at street-level dealers, since the quantity exchanged per transaction is higher at the import level than elsewhere. The situation is in fact rather more complicated than this. First, because the price structure of the illicit market tends to be steeply graduated, a seizure of one kilo at import level is

likely to have a smaller effect on retail price than a one-kilo seizure at wholesale or retail level. Tending to offset this, however, is the fact that drugs such as heroin and cocaine tend to be 'cut' (diluted) as they pass along the distribution chain. As a result, a one-kilo seizure of reputed heroin and cocaine at street level tends to contain far less of the pure substance than one kilo seized at import level. The effect of 'cutting' points, therefore, towards seizures at import level as having the biggest impact on retail prices. There is, however, a third complication, namely that the probability of detection may vary from one level of the market to the next. To the extent that the number of transactions per kilo is higher at street level, the probability of detection will also tend to be higher (Rottenburg, 1968). Whether or not the risks of detection are in practice higher will also depend on the extent of enforcement activity at the two levels of the market. Because all these factors tend to work in opposite directions, it is impossible to say *a priori* whether law enforcement aimed at import level (or indeed distribution level) yields higher or lower net benefits than enforcement aimed at street level.

Econometric studies of United States drug markets suggest that the price elasticity of demand for heroin is low but above zero in absolute size. One study estimated the price elasticity of heroin at -0.25: this implies that a 10% increase in price would result in a 2.5% reduction in demand. The econometric studies to date do not, however, indicate anything about the effects of enforcement measures. The only full-scale model of an illicit drugs market in which enforcement measures are analysed is in the Systems Analysis tradition. As a result, the forecasts produced are derived from assumptions about the effectiveness of enforcement measures rather than estimates.

Many of the model's assumptions are also of questionable validity. The only reliable empirical study of the effects of enforcement measures is the study of the United States drug market by Polich *et al.* (1984), who concluded that even large increases in expenditure on law enforcement, at any level of the market, would leave cocaine and marijuana consumption in that country relatively unchanged.

Trends in the UK illicit drug market

Of the three major illicit drug markets, the heroin market has been the most studied in the UK. It appears to be relatively specialised, with five distinct levels – importer, distributor, wholesaler, retailer and non-dealing user. There appears, however, to be some overlap. In particular, some importers appear to undertake their own distribution, supplying directly to the wholesaler ('ounce dealer'). Little is known about the organisation of the cocaine and cannabis markets, though the latter is thought to be well-organised and competitive. The composition of the heroin market – in terms of 'market shares' of different types of heroin – appears to have changed over the last six years, with Turkish, Iranian and Southeast Asian heroin accounting for increasingly less of the market and heroin from the Indian sub-continent increasing its market share. There is some evidence that Southeast Asian heroin may be re-establishing its market share.

The purity of heroin and cocaine at all levels of the market tended to increase over the years 1980-83. This trend has now apparently been reversed, with purity at import level falling somewhat over the last two or three years and purity at retail level falling dramatically. The degree to which heroin and cocaine is 'cut' (diluted) as it passes along the distribution chain seems, therefore, to be increasing.

Data on prices show that the retail prices of heroin and cocaine in 1985 were roughly the same as they were in 1980. In real terms, therefore, the prices of heroin and cocaine fell between 1980 and 1985. Because, however, the purity of heroin and cocaine at street level tended to increase over the period 1980-83, the inflation-adjusted price per pure gram rose over this period. The recent downwards trend in purity levels at retail level means that the opposite has been true of the period since 1983. Both the current and inflation-adjusted retail price of cannabis resin rose over the period 1980-85. The retail price of herbal cannabis, by contrast, fell in real terms, although it rose in current price terms.

Estimates by the Drug Indicator Project put illicit heroin consumption in the UK in 1982 at between 1,200 kg and 1,900 kg of street-level (diluted) heroin. Using their methodology, illicit heroin consumption in 1984 is estimated in this report at between 2,330 kg and 3,820 kg. The estimates suggest that heroin consumption grew at an average annual rate of 10% over the period 1974-81 and at 21% over the period 1982-84. Total expenditure on illicit heroin in 1984 is estimated at between £112m and £238m. This is equivalent to between 3% and 6% of total expenditure on tobacco in 1984. However, all these figures – and particularly those relating to trends in heroin consumption – should be treated with caution, since they are based on a number of assumptions about the number of heroin misusers, their average daily doses etc. which – with existing data – cannot be verified.

Cannabis consumption has recently been estimated at around 500 tonnes per annum. This estimate, however, ought to be viewed with scepticism. No estimates of cocaine consumption have been attempted.

The costs and benefits of HM Customs and Excise drug enforcement activities

The number of full-time equivalent (FTE) HM Customs staff working exclusively on drug enforcement work has increased steadily since 1979. In 1985 there were 841 FTE staff employed exclusively on drug enforcement. The number of 'preventive' staff – whose work includes drug detection – declined steadily over the period 1979-84, but showed an increase in 1985. Drug-specific expenditure increased in real terms at an average annual rate of 9.0% over the period 1979-85. During 1983-85 it has grown slightly faster (9.6% p.a.) and is currently £23.6 m (1985 prices).

The last three years have also seen a redeployment of manpower in the Investigation Division away from intelligence work directed at cannabis importers towards work directed at heroin and cocaine importers. In 1986 it was planned that 55% of the Investigation Division's expenditure on drug enforcement work will be directed at the heroin market (44% in 1985) and that 15% will be directed at cocaine importers (13% in 1985). In real terms expenditure by the Investigation Division on the cannabis market has remained roughly constant at around £3.6 m (1985 prices), whilst expenditure on the heroin and cocaine markets have shown upward trends.

In analysng their 'output', we have assumed that HM Customs operate exclusively at the import level of the market. We therefore ignore those instances where Customs operate with other enforcement agencies, notably the police. For performance evaluation purposes five possible measures of intermediate output are examined: (i) numbers convicted for drug smuggling, (ii) length of prison sentence for drug

smugglers, (iii) the quantity of drugs seized, (iv) the numbers of seizures, and (v) the interception rate (an indicator of the risks facing importers and couriers). Each is argued to suffer from limitations, with (i), (iii) and (iv) being biased in favour of Customs (in the sense that factors external to Customs over the last five years will have tended to increase the indicators automatically), and (v) being biased against Customs. The interception rate for heroin (the proportion of heroin shipments seized by Customs) for 1984 is estimated at between 9% and 19% and appears to have increased over the last five years. A cost-effectiveness index (CEI) based on the interception rate and two alternative measures of expenditure on drug enforcement suggest that the cost-effectiveness of Customs drug enforcement work probably increased over 1980-82, and possibly thereafter as well.

Using the same methodology as that used by Polich *et al.* (1984), we estimate that a doubling of the interception rate from 15% to 30% would probably result in an increase in the retail price of heroin of somewhere between 9% and 26%. Without better knowledge of the structure of the heroin market at each level and importers' pricing policies, it is impossible to be more precise. Indeed, it is possible that the true figure may lie outside the estimated range.

The costs and benefits of police drug enforcement activities

In 1984 there were 256 FTE police officers involved in drug enforcement work in regional crime squads in England and Wales and a total of 596 in the force drug squads. At both levels the manpower deployment is increasing rapidly: the 1985 figure for drug squads was 713, a 20% increase on the 1984 figure. A rough estimate suggests that another 60 FTE

police officers may have been employed in drug enforcement at the uniform and CID level. Total expenditure by the police on drug enforcement in 1984 was probably in the region of £21.7m (1984 prices).

In analysing the 'output' of the police in the drug enforcement field we have assumed that they operate below the import level of the market. We therefore ignore those instances where the police co-operate with other enforcement agencies, notably HM Customs. For performance evaluation purposes six possible measures of intermediate output are examined: (i) conviction for drug offences, (ii) length of prison sentence awarded for the offences, (iii) the quantity of drugs seized, (iv) the number of seizures, (v) the police seizure rate, and (vi) the risks facing drug dealers. Each is argued to suffer from limitations, with (i), (iii) and (iv) being biased in favour of the police, and (v) and (vi) being biased against the police. The police seizure rate for heroin for 1984 is estimated at between 1.3% and 3.1% and appears to have increased over the last five years. The risks facing dealers are difficult to estimate with any degree of precision, but the estimates obtained suggest that they too may have risen. The risk of imprisonment for supply-related heroin offences is estimated to have been between 8% and 11 % in 1984 and the risk of being proceeded against for supply-related offences at between 15% and 22%.

Two cost–effectiveness indices (CEIs) have been constructed, but are based on indicators of output which are less likely to be biased in favour of the police (seizures and convictions). Thus, the fact that both tended to fall – the cost per seizure fell from £1,092 in 1974 to £808 in 1984 (1984 prices)–is not necessarily indicative of an increase in efficiency on the part of the police.

A doubling in the police seizure rate in the heroin market from 2.5% to 5.0% is estimated to result in a rise in the retail price of between 1.4% and 24%. The upper estimate indicates the effect on retail price if drug distributors/wholesalers doubled their mark-up in response to a doubling in their risks. The effects of stiffer sentences and asset sequestration on retail prices are estimated to be small. An increase in the average prison sentence for heroin traffickers from 5 years to 20 years is estimated to result in a rise in the retail price of heroin of between 9% and 15%. This stems in part from the effects of 'time preference' – a tendency to value future costs at less than present costs. The introduction of sequestration of assets is estimated to result in a rise in the retail price of heroin of only 5%.

Any attempts to compare the effects on the retail price of heroin of increased efforts at the import level of the market or at the wholesale/distribution level requires that certain assumptions be made. If, for example, both the importers and the distributors/wholesalers of heroin increased their prices by doubling their mark-ups when the appropriate enforcement agency doubled their seizure rates, Customs may well have to seize more than 1 kg of heroin for every kg seized by the police in order to produce the same effect on the retail price. However, whether this is in fact the case depends crucially upon the assumption that both importers and distributors/wholesalers have sufficient market power to double their mark-ups following intensified enforcement. In practice, this is most unlikely to be the case. It seems highly likely that importers enjoy considerably more monopoly power than dealers lower down the distribution chain. If this is the case, they will be in a better position to increase their markups than distributors at the lower levels of the market.

If, for example, importers were able to double their mark-ups but lower level distributors were unable to do so because of competition, the police may well have to seize more than 1kg for every kg seized by Customs in order to produce the same effect on the retail price.

In the absence of better information on the market structure at each level of the market and dealers' pricing policies it is impossible to indicate what the real position is likely to be. What is obvious, however, is that it is necessary to look further than the quantities being seized when trying to evaluate the relative cost-effectiveness of alternative drug enforcement strategies. In particular, it is necessary to look at both the price structure of the market and the degree of monopoly at each level of the market.

It is important to emphasise that all of the estimates derived in this report are based on an underlying data base which is woefully inadequate for the task in hand. Where possible we have tried to overcome this by adopting over-generous assumptions so as to ensure that our results will be over-estimates, rather than under-estimates. This is true, for example, of our estimates of the effects of intensified enforcement. At other times we have adopted a range of assumptions, so that our estimates are in the form of a minimum and maximum estimate. This is true, for example, of our heroin consumption estimates for a given year. There are occasions, however, where we have investigated trends in variables, but have had little guidance as to how the reliability of our assumptions may have changed one year to the next. Our estimates of trends in heroin consumption are a case in point here: we cannot exclude the possibility that the estimated rise in heroin consumption reflects a failure

on our part to take into account changes in, for example, the average daily dose or the average frequency of use. The research proposals at the end of the report – Chapter 7 – are drawn up with these data limitations in mind.

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16

Managing the medical workforce: time for improvements?*

Editors' Commentary

The majority of health care resources are used in paying for the health care workforce, but relatively little attention has been given to the efficient planning, production and deployment of this resource compared to health care technologies and health systems reform. Maynard has been researching and commenting on health care workforce policy since the 1970s. In this paper he discusses workforce planning in the context of the NHS 'internal market' of the 1990s. He makes the case that planners should not assume that workforce ratios are optimal given variations in practice and evidence of significant inefficiencies in the system, and urges planners to be more flexible in considering workforce substitution. Better data on the price elasticity of the supply of doctors and other health care professionals would allow planners to consider the alternative of using incentives to increase and shape the workforce by attracting people back into the workforce, or from abroad, rather than the slow and expensive approach of increasing training numbers. Finally he recommends that

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there should be consideration of some local wage negotiation to reduce the monopoly power of professional groups and to allow a more flexible and efficient response to recruitment difficulties in some local areas rather than relying on costly temporary staff – a recurrent problem which still troubles the NHS to this day.

Maynard always had sensitive antennae for detecting medical monopolies which preserved professional power and were not in the public interest. In the second paper he challenged the privileged role of the medically trained public health physicians in England, in those days working mainly in health authorities responsible for purchasing (commissioning) health services from hospitals. Non-medical public health specialists did not have the training, development and career opportunities open to public health doctors. This monopoly was inefficient because of the high salary compared to non-medically trained public health workers, the range of other skills available that were not being tapped, and also the highly variable quality and effectiveness of many public health doctors. Since then the public health profession in England has seen the development of the concept of multi-disciplinary public health, with public health specialists and consultants coming from a range of backgrounds and the rise of non-medical directors of public health.

Abstract

There has been a regular cycle of Government committees in Britain that have forecast 'shortages' and 'surpluses' in medical manpower. It is remarkable how little change there has been in the methods used in these forecasts despite criticism of their methods and the move towards competitive markets in the delivery of health care. The

practice of medical manpower planning was criticised in the 1960s because of the failure to explore the implications of alternative skill mixes and incentives. Whilst these criticisms were ignored, the forecasters now pay more regard to budget constraints and produce more regular estimates. The 1992 forecast could be improved by sensitivity analysis (e.g. for GP/population ratios). However, unless the issue of scope (forecasting for all health care staff, not just for doctors alone) and the implications of skill mix and incentives identified in the 1960s are addressed effectively, the current recommendations may produce doctor 'surpluses' in the early twenty-first century. The Government's analysis should be challenged at the level of principle and practice, and this implies that the research activity proposed in the 1960s is carried out in the 1990s to facilitate efficiency in the twenty-first century. Furthermore, the issue of policy priorities and their ranking needs to be spelt out explicitly: does the Government want a competitive NHS internal market, and if it does, what is the role of central manpower planning? One implication of current policy choice and the maintenance of manpower planning is that cost containment is of more importance to policy makers than the internal market.

1. Introduction

For the last 50 years the Government has sought to forecast the demand for and supply of medical manpower and made adjustments to the supply in the light of these forecasts in order to ensure 'equilibrium' in the labour market. They have, in effect, sought to plan the labour market for doctors. This has been done by asking a series of ad hoc committees and two Royal Commissions to construct forecasts and make recommendations for policy. The main thrust of these

recommendations has always been directed towards the medical schools' intake, which has been viewed as the main way of adjusting the doctor stock. The broad direction of the recommendations of the committees has always been adopted as policy, although in one or two cases the scale or time path of adjustment to the medical school intake has been modified by policy makers.

The success of the forecasting and policy formulation, as in most planning systems, has been mixed. In 1942/1943 the medical school intake stood at 2050. The Goodenough Committee (1944)[1] recommended a modest expansion in numbers, but in the event the Government undertook a major expansion to 2500-2600. A fear of a 'surplus' of doctors in the mid-1950s led to the Willink Committee[2] proposing a reduction (10%) in the medical school intake. Although the Willink advice was immediately adopted as policy, it was clear within a few years that the methods used by the committee, and inadequate data, had shifted policy in the wrong direction, and steps were taken to restore the medical school intake. The Royal Commission on Medical Education[3] produced an interim report (1966) urging a major expansion in numbers, including the opening of new medical schools. The final report set a target intake of 4230, to be achieved by 1980. The major programme of expansion set in train by Todd has, with only a minor adjustment to the time profile, carried policy through to the present (intake passed 4000 in 1980, and the Todd target was finally exceeded in 1991). Subsequent reviews of medical manpower policy[4-6] and two reports by the Advisory Committee for Medical Manpower Planning[7-8] have not sought to change the direction of policy, although there was some anxiety in the late 1970s and early 1980s about possible doctor 'surplus',

and the 1989 report of the Advisory Committee did suggest a modest 'shortage' early in the new millennium. The later reviews have had access to better data sources and have used a better methodology, including taking greater heed of NHS funding constraints.

The latest forecasting exercise and set of policy recommendations came in the first report of the Medical Manpower Standing Advisory Committee (MMSAC), published in December 1992.[9] The decision to establish a standing committee in July 1991, rather than continuing to rely on ad hoc committees, came thirty-one years after this arrangement had been recommended by Professor John Jewkes in his memorandum of dissent to the Royal Commission on Doctors' and Dentists' Remuneration (Pilkington Report).[10] Jewkes made a further recommendation: that the remuneration system should be viewed as an instrument of manpower policy. He believed that price (wage) adjustment should be considered as well as quantity adjustment to bring into balance the demand for and supply of medical manpower.[11] This further recommendation is, arguably, even more apposite than his call for a standing committee, because the 1989 NHS reforms have emphasised decentralisation and competitive forces, with price adjustment and price signals being an important part of the working of capital, labour and product markets. In principle the role of prices (wages) may give markets a decisive advantage over planning as the means by which an efficient allocation of resources is achieved. However, there is no explicit mention of pay in the MMSAC's terms of reference, and the committee does not appear to view pay levels (the pay of doctors relative to the pay of other groups of workers within the health service and relative to pay elsewhere in the economy and relative

to the price of other health service inputs) as having an important bearing on the choice of input combinations and the efficient allocation of resources within the NHS, or as having an impact on the availability of inputs. In particular, none of the solutions, short-term or long-term, to doctor manpower problems listed on pages 83 and 84 of their report mentions price (or wage) as a significant variable influencing outcomes.[1] The MMSAC is required to take account of the resource assumptions of the Department of Health and of the Higher Education Funding Council, and the committee does indicate that it is acutely aware of a budget constraint facing health care. However, the Department of Health and the MMSAC appear to believe that the role of the committee is to make recommendations about the planning of quantities (numbers of doctors) with reference to a budget constraint but without reference to relative prices and the part that prices might play in securing an efficient allocation of resources. The Department of Health's perspective almost certainly reflects their long experience (since 1960) of relying on another standing committee, the Review Body on Doctors' and Dentists' Remuneration, to make recommendations on pay. From 1948 to the late 1980s the NHS was, as far as manpower was concerned, an administered price system, where wages reflected to only a very limited degree relative scarcities of labour (Review Body recommendations have been dominated by equity considerations). In these circumstances the concern of policy makers was to establish a post that would then continue to be funded. Concern about cost was a secondary consideration.

1 Conditions of employment, notably the opportunities for part-time employment, are mentioned, but pay levels are not.

However, there is now a system where costs and contracts are of central concern, where labour is the dominant component of production costs, and where NHS hospital trusts now have some freedom to fix both the conditions of employment and the wages of their own employees. Although the MMSAC states at a number of points that the changing nature of the NHS has implications for medical manpower policy, it seems that it and the Department of Health have either not fully understood the reformed health system for which they are attempting to develop a manpower policy or are working on the assumption that the NHS market reforms are a charade and that the system is still to be controlled by 'command economy' mechanisms. An important indicator of the triumph of the command economy approach is that the first report of the MMSAC is entitled *Planning the Medical Workforce,* when in fact the report concentrates on doctor manpower, in isolation from all other capital and labour inputs, and its central recommendation is for a significant quantity adjustment (number of doctors) to be achieved by raising the medical school intake.

If the NHS reforms are real and market mechanisms are to influence resource allocation increasingly, the MMSAC misunderstands the system it is trying to model and for which it is making forecasts. This thesis is explored in the remainder of this paper. This is done by contrasting the implicit model at the heart of MMSAC thinking with what may be a more accurate conception of the NHS. (Blaug[12] in a similar vein contrasted two different views of educational planning.)

The differences between these two perspectives on four key issues are considered: the nature of the production technology in health care; variation in the supply of medical

Issue	MMSAC (implicit) view	Implications of MMSAC view	Our View	Implications of our view
1. Production technology in health care	1.1 Fixed input coefficients (Leontiel) 1.2 Improved health care requires higher doctor/population ratios	1.1 Relative prices/ wages are unimportant in determining efficiency 1.2 More health care/ better health means we must have more doctors 1.3 Small shortages threaten delivery	1.1 Considerable substitution possibilities 1.2 Better health care mights as easily be less rather than more doctor-intensive	1.1 Relative prices/ wages are central in determining efficient input combinations 1.2 Need to investigate substitution possibilities 1.3 Flexibility means small shortages, surpluses can be ameliorated by wage/price changes
2. Supply of medical manpower and co-operating factors	2.1 Elastic supply of co-operating factors 2.2 Main source of additional active doctors is newly trained; increasing participation from inactive ignored	2.1 Justifies focus on planning doctors alone (the binding constraint in improving health care) 2.2 Justifies focus on medical school intake as the only instrument of policy	2.1 Elasticity of supply of co-operating factors unclear 2.2 Additional active doctors can be drawn from pool of inactive or overseas (inc. Europe)	2.1 Need to investigate all health labour markets 2.2 Need more investigation of potential flows from inactive and overseas (particularly E. Europe)
3. Efficiency (technical efficiency)	3.1 Fairly efficient	3.1 Limited scope for increasing output and meeting additional demands or needs by improving efficiency	3.1 Fairly inefficient	3.1 Substaintail possibilities for increasing output of health care and meeting increased demands or needs by improving efficiency (eliminating X-inefficiency)

Issue	MMSAC (implicit) view	Implications of MMSAC view	Our View	Implications of our view
4. Price determination/role of price incentives	4.1 Monopsonistic/ monopolistic. Determination of wages by Government employer and doctor trade unions 4.2 Limited rile for wage/ price incentives	4.1 Prices/wages have not been used as policy instruments. Policy has focused on adjustment of quantities in a deterministic system	4.1 Increasing local negotiation of wages and conditions for all staff (declining monopoly/monopsony power) 4.2 Substaintial role for price/wage incentives	4.1 Trusts will increasingly use price/wage incentives 4.2 Far more investigation of price/wage elasticities

manpower and in the supply of co-operating inputs; the efficiency of the health service; and price determination and the role of price incentives. The two views of these issues are set out in a summary form in Table 1 and then at greater length in the text.

2. The nature of the production technology in health care

The way in which doctor manpower planning has been carried out since 1944 implies a particular view of the production technology of health care: that inputs (different types of labour and capital) must be confined in fixed or near-fixed proportions to produce health care. The simplest form in which this view is propounded is to argue that to produce health care a particular set of tasks or procedures must be carried out, and each of these tasks or procedures is the responsibility of individuals with particular levels of training or qualification (often perhaps requiring particular equipment or facilities). This view implies strong complementarities between inputs, it leads to thinking in terms of desirable ratios between inputs, and, if scale economies are presumed to be relatively rare, to discussion of target ratios between inputs and outputs. One important consequence of this view is that for a given state of technology, and assuming that there are no economies of scale and that resources are being used efficiently, to increase the amount of care delivered to a given population will require a change in the doctor/population ratio.

From this perspective it is also the case that relative input prices are not important in the choice of input proportions: a fall or rise in the price of an input does not lead to an increase or decrease in the proportion of that input being

used. Thus technological relationships between inputs completely determine the efficient input ratios.

In contrast to this view is the view that there are considerable substitution possibilities in health care, and most of the fixed input proportions that have been accepted as given by planners simply reflect rigidities in working practices arising from the power of professional interest groups. In a system where there are substantial substitution possibilities, the efficient input combination depends on the relative prices of the inputs, and this combination will change over time because of improvements in technologies.[13-14]

Although, with their lengthy discussion of skill mix, it appears that the MMSAC has moved towards the view that there are significant possibilities for input substitution, this is not the case. What the MMSAC is considering is the possibility of a move from one set of fixed coefficients to take account of the technological change that has occurred (including the change in the skills of other groups of staff). The discussion in, for example, paragraph 3.10 – 'while each [profession] has a clearly defined role' – and paragraph 3.11.2 – 'inappropriate tasks are currently being preferred, particularly, by junior doctors…' – reveals that they still view the allocation of tasks as being determined by technology and not by the relative price of inputs. In a system with significant substitution possibilities there are a range of possible input combinations, and the one chosen will depend upon the relative wages or prices of the inputs, which may differ geographically.

2.1 The size of the GP list

The MMSAC's view is also revealed in its approach to GP list size. Successive inquiries into doctor numbers have made

assumptions about the 'optimal' GP-population ratio and proposed manpower policies to achieve these ideals. For instance the Willink report[2] proposed a GP population ratio of 1:1775, to be achieved by the year 1980. The MMSAC[9] proposes a ratio of 1:1700, to be achieved by the year 2010.

The 1700 figure is the product of lobbying by professional organisations such as the British Medical Association, and, like so many 'givens' in health care, is of dubious validity. The normative case made to sustain this advocacy revolves around the belief that GPs need more time with their patients and this need is accentuated by an ageing population.

Casual observation of employment patterns in general practice shows that there is considerable use of receptionists, practice nurses, health visitors and counsellors in general practice; for example, from 1988 to 1992 the number of WTE practice nurses trebled to 9400 WTE in England and Wales.[15] The number of health visitors (12 600 WTE) and district nurses (19 800 WTE) has been stable in recent years.[16] If tasks are being delegated (and even if there is no knowledge of the cost effectiveness of this substitution), it is possible that fewer GPs are required and that a higher, not lower, GP-population ratio would be efficient.

Table 2 – Implications of high GP-population ratios

	GP population 1:3000	GP population ratio 1:4000
Need fewer GPs	13 000	17 000
Make resource savings	£481 mn	£681 mn
Buy more practice nurses* with resource savings	27 823	39 338

* Assuming median salary for a practice nurse.
Source: Bloor and Maynard [19].

With the rapid development of general practice fund holding (GPFH), which makes GPs much more conscious of relative prices and wages, changes in the primary health care team skill mix are likely to be more rapid and more radical. GPFH may prefer not to buy new partners but counselling and nursing skills. There is some evidence, but little of a systematic nature, of considerable innovations in skill mix in GPFH.

There is some evidence (but as poor as the evidence to substantiate the 1:1700 ratio, it has to be emphasised) that 1:3000 or 1:4000 ratios are effective with nurse substitution.[17-18] The implications of these ratios are significant (Table 2). The move from 1:1700 to 1:3000 or 1:4000 could only take place gradually: there are not 27 000 practice nurses to replace 13 000 'unwanted' GPs!

If the MMSAC is to project doctor numbers into the twenty-first century it should use sensitivity analysis to explore the impact not just of the BMA-advocated 'ideal' GP-population (1:1700) but also of other ratios used in other practices (e.g. 1:3000). To do otherwise is to assume that practices are efficient and immutable when in practice both technological change and factor substitution possibilities are considerable and may be enhanced by changed reward systems (e.g. GPFH and the new GP contract).

2.2 Consultant-junior ratios

As can be seen from Dowie's work,[20-27] there are large observable variations in consultant junior ratios, and these production teams have very different activity and cost characteristics (Tables 3 and 4). These cost variations partly reflect case mix differences but may also reflect significant differences in the role of other types of staff in providing and organising care.

Table 3 – General Surgery

	Consultants	Sen. reg/ reg.	SHO/HO Ratio cons. all junior		Number of cases[1]	Medical staff cost per case[b] (£)
DGH/WM	5	3	8	1:2.2	4860	90.5
DGH/EA	3.6	3	5	1:2.2	4500	71.6
DGH/Trent	4	2	8	1:2.5	6690	55.5
GH/EA	1.6	1	4	1:3.125	1940	86.5
GH/Trent	1	2.6	–	1:2.6	950	110.5
GH/North	2	3	2.6	1:2.76	2960	69.0

[1] The source of the information in columns 1-5 is Dowie [20-27]

[b] These calculations relate gross staff salary in 1991 (assuming consultant at top of scale, senior registrar/registrar at mid-point of senior registrar scale, SHO/HO at mid-point on SHO scale) to the number of cases.

Table 4 – General Medicine

	Consultants	Sen. reg/ reg.	SHO/HO Ratio cons. all junior		Number of cases[1]	Medical staff cost per case[b] (£)
DGH/WM	5	3	9	1:2.4	4280	106.9
DGH/EA	2.2	1.3	5	1:2.9	2400	91.3
DGH/Trent	5	5	10	1:3.0	6900	75.4
GH/EA	1.4	1	4	1:3.6	1690	99.2
GH/Trent	2	I	4	1:2.5	1940	95.6
GH/North	2.6	2	6	1:3.1	1690	160.3

[1] The source of the information in columns 1-5 is Dowie [20-27]

[b] These calculations relate gross staff salary in 1991 (assuming consultant at top of scale, senior registrar/registrar at mid-point of senior registrar scale, SHO/HO at mid-point on SHO scale) to the number of cases.

The notion of the consultant junior team was inherited by the NHS in 1948 and maintained at the behest of the consultants. The system is unique: no other health care system uses such methods to organize the delivery of patient care. It is maintained not because of evidence about cost effectiveness but because of historical lethargy supported by consultant self-interest related to both private practice and fear of some unspecified alternative that might affect consultant roles (e.g. a medical management system that might reduce existing autonomy).

The work practices of hospital staff produce many anomalies, for example some juniors earning, because of overtime, salaries in excess of those earned by some consultants. There is almost certainly an economic (efficiency) case for a large number of skilled senior registrars to be promoted to specialists and for the so-called 'training grades' to be translated into effective training grades relying on instruction and education rather than 'learning by doing' under pressure and with sometimes inadequate supervision, clinical training (as seen in the CEPOD reports) and research management.[28]

Whilst issues such as these are of great relevance, the issue of substitution in hospital care is of primary importance. For manpower planning purposes the scope for doctor/nurse, doctor/ancillary worker and other types of substitution is substantial, as evidence by the variations in these ratios throughout the NHS. There is advocacy, by the NHS Executive, for substituting unskilled labour for trained nurses, although the evidence indicates that this may not be efficient.[29] Differing skilled and unskilled nursing policies have impacts on doctors' roles and the division of tasks on the ward team; it is inappropriate, therefore, to make

decisions about doctor numbers in isolation from numbers and types of nurses and other labour inputs.

2.3 Other sectors

The MMSAC examines other potential areas of demand for doctors: the private sector, public health medicine and DH Research and Development (R&D) needs. The private sector is small (10,000 beds, £1.3 billion expenditure) and affected by the recession. Market forecasters predict considerable growth in the private sector to the year 2000, but this will be dependent on the economy's growth and the funding of the NHS. A significant increase in the number of doctors working in the private sector will probably only occur if there is a radical change in public policy. However, it is possible that this sector will employ full-time specialists. The insurers have recognised that the cost of contracting for consultant time, when faced by BMA price fixing,[30] is very high and may be reduced by more vigorous purchasing (especially when post-Tomlinson supply conditions may drive down fees) and by employing in-house staff.

Public health medicine is a multi-disciplinary activity, and some have argued that it need not be dominated by medically trained practitioners hired on long-term contracts with consultant status. These practitioners carry out tasks requiring skills in statistics, epidemiology, sociology, psychology and economics.[31] Posts as Directors of Public Health Medicine, Specialists in Public Health Medicine and academic chairs in this discipline may not need to be restricted to medical practitioners. Substitution of non-medically qualified staff might achieve considerable resource savings, as remuneration below consultant scales would almost certainly attract well-qualified staff. Whilst the Faculty of Public Health Medicine

and Directorates of Public Health are admitting non-medically qualified staff, change is slow and marginal. The case for considering the possibility of a large reduction in demand in this area is clear, but it has been ignored by the MMSAC, which has uncritically accepted the advocacy of the Public Health Medicine Faculty.

The Department of Health's R&D strategy is long overdue, and the appointment of a Director of R&D (Professor Michael Peckham) has raised the R&D profile in the department. The constraints on public expenditure may restrict the expansion of R&D, and whatever its level of growth, its focus will be health services research (HSR). This requires multi-disciplinary activity, and the role of the medical practitioner will be limited. The medical model of research has often given too little attention to trial design and has usually ignored cost and effectiveness measurement. This has produced the current ignorance about cost effectiveness, which must be remedied as HSR is expanded. The need for additional medically qualified people to carry out R&D is small and could be met in part by the reductions in manpower needs in public health medicine.

3. The supply of medical manpower and co-operating factors

The forecasting exercises and policy recommendations since 1944 have focused on doctor manpower in isolation and regard changes in the UK medical school intake as the most appropriate way to change the active doctor stock. This approach implies an elastic supply of co-operating factors, including other kinds of health service labour. Far less attention has been given to other types of labour input, but there are grounds for believing that problems for the Health

Service are as likely to arise in these other labour markets. The training period for much of this labour, although shorter than for doctors, is still of several years duration. In the case of the largest group, nurses, the possible impact of a combination of higher academic entry requirements, demographic changes and, most importantly, rising opportunities elsewhere in the economy for well-educated young women deserves more investigation.

The MMSAC, like its predecessors, focuses on the medical school intake as the main instrument of policy for changing the doctor stock. There is a chapter of its report devoted to flexible working patterns, but even more attention should be given to the issue of female participation. With women now forming 50% of the medical school intake, it is clear that there remain too many barriers to participation and constraints in training and hence career choice within medicine.

Overseas doctors have played an important role in the health service since the 1950s, but the Royal Commission on Medical Education[3] established a principle of national self-sufficiency in medical manpower. Restrictions on entry for doctors from outside the EC introduced from the 1970s, culminating in changes in immigration rules in 1985, mean that the contribution of non-EC doctors will for the most part be restricted to a period of up to a few years in training grades. This means that non-EC doctors will form a declining part of the stock (e.g. because of retirement or return to country of origin), and the MMSAC assumes that the numbers seeking training posts will stabilise at present levels.

More problematic is the MMSAC's attitude to modelling the flows of EC doctors. It states that 'flows of EC doctors were too unpredictable to be relied upon for manpower planning'.[9] The medical schools of the other major western European countries have all engaged in even larger growth than those in the UK. These countries also have social insurance systems, and all are trying to restrict the rate of growth of health spending. This strongly suggests that a growing movement of doctors across Europe is likely, and it is unlikely that linguistic barriers will present a significant obstacle to such a highly educated group of professionals. Consequently, flows from EC countries and changing participation of women could easily become a far more significant source of changes in the medical workforce than proposed changes in the medical school intake.

4. Is the delivery of health care efficient?

The authors of the MMSAC report do not acknowledge the inefficiency currently present in the health care system and make no attempt to take account of possibilities for reducing these inefficiencies when carrying out their manpower forecasts. The shift towards the market and a more price and contract-oriented system may induce a move to a knowledge-based health care system. There are a number of sources of inefficiency.

4.1 Practice variations are significant

An illustration of the variations in medical activity rates is shown in Table 5, where, for instance, the rate of haemorrhoid procedures per 10 000 population (age and sex-adjusted) varies by more than four times at the district level and by two times regionally. The activity rate for emergency

procedures (e.g. appendectomy) also varies enormously. Similar variations exist outside surgery, for example in the use of drugs and in radiothereapy (e.g. Priestman et al[32]).

The causes of these variations have been studied extensively and are summaried in Table 6.[33] It can be seen that the most common cause of these variations is clinical decision-making: i.e. doctors do not agree what is appropriate.

4.2 Effectivess information is ignored

Much effectiveness information that is available is ignored by clinicians and does not influence their practices: they continue to use inappropriate procedures that are demonstrably ineffective or inappropriate and costly.

There are many examples of ineffective or wasteful practices that are known and ignored by clinicians. An analysis of the use of dilation and curettage (D&C) in young women[34] has shown that the activity rate in England is over six times as much is in the United States, where D&C has been replaced by non-invasive, outpatient procedures. It seems that D&Cs are ineffective and costly and if largely eradicated would have no deleterious effect on the health of young women.

4.3 Efficiency: outcome data

The existence and causes of wide variations in clinical practice and the failure to utilize effectiveness information to improve clinical practice are as well known, as is the absence of outcome and cost effectiveness information. Little has changed since Cochrane[40] re-emphasised that only a small minority of clinical interventions has been evaluated, and the majority of clinical activities are of unknown efficiency. Fuchs[41] put the problem nicely when he argued that 10%

of therapies reduce health status, 10% have no effect and 80% improve health status. The problem is, argued Fuchs, that no-one knows which therapies are in the 10% and 80% categories! Where routine outcome data exist they tend to be ignored by clinical and non-clinical management process.[42] Outcome data produced by clinicians appear to show large variations and are confidential to the profession.[43]

Table 5 – Variations in surgical activity rate (rate per 10 000 population, age and sex-adjusted)

	Districts		Region	
Procedure	**Low**	**High**	**Low**	**High**
Hernias	10.0	20.0	8.5	14.5
Haemorrhoids	1.0	4.6	1.3	3.0
Prostatectomy	4.5	9.5	5.8	13.2
Cholecystectomy	7.0	11.0	5.7	9.7
Hysterectomy	7.5	15.0	18.1	28.7
Appendectomy	14.0	21.0	12.9	19.4
Tonsillectomy with and without adenoidectomy	7.5	27.5	14.0	25.0

Source: Sanders, coulter and McPherson [36], Table 3 reporting data from McPherson (1981, 1982)

The MMSAC forecasts, by ignoring these inefficiencies, implicitly assume that they will continue at a similar level and are prepared to sanction an increase in doctor numbers when an effect of similar or greater size might be achieved by either a drive for greater efficiency or may in any event occur as a result of the working of the internal market.

5. Price determination and the role of incentives

The MMSAC sees its task, to forecast manpower demand and supply, in quantity (volume) terms and largely ignores the role of prices and wages. This is not a wholly reasonable strategy, even in a world of fixed input coefficients (Leontief world). In a world with greater substitution possibilities, the economically efficient input mixes will be affected by relative pay and prices of different types of staff, capital

Table 6 – Plausible sources of variation at different levels of aggregation

Variation between	High	Supply	Clinical	Demand
GPs	S	0	L	S
Districts	M	M	L	S
Regions	L	L	S	M
Countries	L	L	L	L

L, Large; M, medium; S, small; 0, no effect relative to others in row
Source: McPherson [33].

equipment and drugs, etc. Wage levels also have an impact on the decisions to join, participate in or leave the workforce of the NHS.

It is the case that wages and salaries of staff have been fixed on an annual basis by pay review bodies. Doctors have had a Pay Review Body since 1960, and nurses and professions allied to medicine have had Pay Review Committees since 1984. The deliberations of these committees have in most years been dominated by the issue of pay relativities with other groups (equity issue) and have made only occasional reference to the balance of supply and demand of staff of different types and grades (efficiency issue). The NHS

reforms have the potential to change greatly the relative importance of price and quantity adjustments to deal with supply and demand imbalances. NHS trusts are now free to fix the pay and conditions of their staff. If, on the MMSAC forecasts, 'shortages' of doctors appear, the managers of the trusts may bid up salaries rather than risk failure to fulfil contracts. It is extremely unlikely that flows into and out of the professions (retirement, temporary non-participation, migration) are beyond the influence of wage changes, and this will have a potentially significant impact on the number of doctors available. Price and wage changes in a market help shift resources to their most highly valued uses. Rising salaries for doctors will help discourage their use for tasks for which less costly substitutes are available. Rising salaries for doctors will oblige trusts and purchasers to carry out investigations of substitution possibilities and to examine different work practices.

The present systems of payment of doctors have many deficiencies as instruments for improving resource allocation in health care. In 1991 the Government imposed a new GP contract on the profession. The previous contract had obliged GPs to provide those services that are generally provided by GPs! By the late 1980s the Government had discovered that they did not know what a GP did (although the BMA assured the world it was cost-effective!) and decided to introduce a performance-related contract. Unfortunately many of the services in this new contract were of dubious cost effectiveness.[44] Thus the new contract persuaded GPs to carry out inefficient activities (e.g. annual screening of the elderly and initially – until 1 April 1993 – vague health promotion activities).

The present system of payment for the majority of consultants also appears to have little logic in terms of relating performance to pay. The consultant receives a salary, may get a Distinction Award and may earn considerable amounts (average £39,000 p.a.) from private practice. No attempt has been made to integrate these payment systems to encourage the delivery of good-quality care in the NHS. Each component of the payment system has inherent perverse incentives (e.g. the logic of the distinction awards system is unclear, the award process is secret, there is no accountability, and recipients never lose their awards). These issues are explored elsewhere.[45-46]

It is difficult to relate performance to pay, but policy makers in the US Medicare system have attempted to do so. In the reformed NHS it is clearly wrong to ignore the impact of payment systems on the medical and labour market unless Government policy to create competition in the health care market, with decentralised decision making, is rhetoric and the reality is a desire to maintain 'command economy' planning mechanisms.

Salary changes and other sorts of payments in a market might also be used to mitigate some other problems in the doctor labour market, for example:

(i) They might be used to reduce adjustment lags. It is asserted that it takes 7 years and £80,000 to train a doctor with no specialized skills. A bounty or an enhanced grant (as used to attract teachers in to shortage subjects) might attract science (or nursing) graduates into medicine, greatly reducing the qualifying time.

(ii) Consultant contracts, with higher pay, might be used to attract doctors into `shortage' specialties. This and the abandonment of the restrictive practices inherent in recruitment and employment practices might facilitate the provision of better health care, perhaps at lower cost.

The MMSAC proceeds as if payment and contractual issues are 'givens'. History does not vindicate this approach (pay relativities have changed over time), and as the internal market is developed in the NHS, and this will require considerable political courage, the 'givens' of the past may be rendered meaningless. If change comes it will have to be implemented with care and may have considerable effects on forecasting.

6. Conclusions

Manpower planning that focuses mainly on the number of doctors is inappropriate in the reformed NHS unless it is Government policy that cost containment takes precedence over the use of markets to produce greater efficiency – which may be the implicit goal of the Government. The efficient combination of doctors and nurses and doctor and other labour and capital inputs depends not only on a set of technological determinants but also upon relative wages and prices. Furthermore, such planning creates inappropriate expectations: to quote Peacock and Shannon a quarter of a century ago,[47] it encourages 'the expectation that there will always be funds available to allow the projected number of doctors to retain the economic and social status which they have enjoyed for so long' (p.38). Such cosy expectations are untenable and unlikely to facilitate the efficient use of resources in the NHS.

It is inappropriate to protect doctors from the forces of change produced by NHS reforms, technological change and substitution possibilities. The implicit assumption of fixed coefficients is inaccurate, and the implications of a more flexible world need to be more carefully explored, as has been argued for decades.[48-49]

The MMSAC has called for research on substitution possibilities, repeating a call first made in the 1960s. It is important that this issue now receives careful evaluation, in well-designed trials, which consider the costs of differing input mixes and their effects on the quality of health care.

Why forecast? If the MMSAC did not exist, would it have to be invented? The technical exercise of producing forecasts does not require the MMSAC: departmental officials produce these data. An appropriate role for the MMSAC (compared with its terms of reference) might be to challenge these forecasts and, instead of perpetuating the practices of decades, focus attention on the well-identified characteristics of existing practice and the design of credible alternative scenarios for forecasting work by officials. Some argue that the impact of the MMSAC is small and that if they 'get it wrong' the resource consequences will be slight. This is a poor argument. If the MMSAC procedures implicitly condone the resource misallocation in the NHS then the welfare losses are likely to be large. The first report of the MMSAC proposed an expansion of the medical school intake, the costs of which are substantial.

The relatively recent decision to establish the MMSAC and the pattern of activity it has undertaken suggests either confusion about the nature and potential of the NHS

reforms or, worse, a cynical approach to policy in which the reforms are seen as being mainly of rhetorical value rather than a genuine attempt at achieving greater efficiency. The MMSAC in its present role and mode of operation represents an extension of planning and central control. Perhaps it would be better engaged in commissioning research providing information generating debate on issues that are likely to improve the resource allocation decisions of the decentralised units of the reformed NHS.

Whilst the overt intent of the 1990 NHS Act seemed to focus on market competition as a means of improving resource allocation, its real purpose, as seen in the legislation and in practice in key decision areas, was to increase the power of central government. HM Treasury, whose concern is cost containment, appears to have triumphed over those seeking to use markets as a means to improve efficiency.

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17

Money down the drains*

Can the NHS afford public health medicine as it is now organised? At present, public health medicine is a medical club in which practitioners are given the status of consultant and paid a basic salary of nearly £60,000. In addition, 90 public health doctors receive distinction awards which can double the salary of a lucky few to a level in excess of £100,000.

Some practitioners provide excellent value to the NHS. But do we need so many of these drains folk, or could their tasks be done as well or better by cheaper, non-medically trained specialists in statistics, systematic reviewing, economics and other trades?

After medical school, and perhaps some clinical practice, the typical public health doctor becomes a registrar and takes examinations set by the Faculty of Public Health Medicine in subjects such as sociology, statistics, management and economics. Alongside this, registrars may complete, with non-medically trained graduate students, a MSc or MPH in drains medicine. After passing the faculty examinations, the trainee is required to complete a dissertation.

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* This chapter first appeared as Maynard, A. (1999). Money down the drains. *Health Service Journal*, Volume 109, p.18-19.

Once this training is successfully completed, the typical practitioner has a job for life as a consultant.

Their main area of work is purchasing, where the challenges are to aid prioritisation in contracting and to ensure trusts and GPs provide cost-effective services. All too often, the challenges inherent in this work are not met and practitioners invest too heavily in 'needs assessment': an agenda for dreaming up wish lists of new services for which there is no funding and where prioritisation of competing demands is often neglected.

It is remarkable how little routine data there is about services in localities. Simple resource mapping could tell us how much is spent, for example, in trusts on packages of care for different cancer groups. All too often such data is absent when choices are made, even though such resource data, together with activity and quality data, is an essential ingredient of efficient decision making. These and other purchasing failures mean that service resourcing and quality may vary considerably between neighbouring trusts.

One reason for the lack of focus on the relevant data and techniques may be inadequate training. The skills necessary to inform purchasing efficiently are epidemiology, techniques of clinical evaluation and systematic review – economics and statistics in particular.

But why, if these skills are needed, are specialists in these areas not employed? Often non-medical specialists are better trained, and they are much cheaper – an economics professor is paid £40,000-£45,000, while a public health doctor may cost in excess of £60,000. Non-professorial social scientists

can be bought for £25,000-£35,000 and will have had considerable experience in the trade by the time they are on this level of the academic pay-scale.

Is the failure to use non-medical specialists in public health a conspiracy or a cock-up? Perhaps it is due to the restrictive practices of an endangered species. For example, it is rumoured that the chief executive of one purchaser sought to translate his public health director into a health policy director, a post to be open to non-medics. Rumour also has it that the medical forces of reaction in Richmond House and the royal college ganged up to oppose this sensible move. It would seem they wished to appoint not the best person but the best medically qualified person.

The Faculty of Public Health Medicine has more than 1,100 members and fellows. Ignoring the cost of registrars, and assuming a modest cost of £60,000 for each drains consultant, their wage cost is £66m. Let us imagine that over a period of five to 10 years, half of these doctors were returned to patient care. After all, there is a shortage of GPs, and drains folk – after suitable retraining – could be used to provide primary care in the deprived areas with which they are, apparently, so concerned.

Redeployed public health physicians could be replaced by 550 non-medical specialists at an average cost of £35,000 (a very generous payment level for such people). This would free about £14m to be spent on patient care. Purchasers need to be efficient, but most seem to use this contracting potential for care services rather than medical management within their own organisations.

The drains folk fraternity are at the forefront of the clinical governance bandwagon, advocating improvements in the cost-effectiveness, and hence the quality, of patient services. Surely they cannot resist the logic that says fewer of them will save resources, and that substitution may provide services of equal or better quality than non-medical specialists? Can the NHS afford or tolerate such ostrich-like resistance to change?

Of course, public health practitioners may accept the case for substitution and economy: if so, they are very quiet about it. As purchasers, they have supported, or at least condoned, extensive skill-mix in primary care (nurses for GPs) and the hospital sector. If, in fact, there is no conspiracy by drains folk, then non-medical managers must be guilty of weakness and a failure to exploit the potential of substitution. Such substitution has taken place in isolated pockets of rationality, many of which are in Scotland. Purchasers elsewhere might usefully exploit further such substitution possibilities.

The challenge for public health medicine is clear: can we afford them in terms of skills and costs? Why are apparently efficient substitution possibilities under-exploited? Or are the drains folk more cost-effective?

Surely it is time to develop and use openly the knowledge base rather than politely avoid a very pertinent policy issue because some feel it is impolite to challenge the medical mafia.

18

A plea for measuring outcomes*

Editors' Commentary

When arguing for increased efficiency, Maynard was always keen to ensure that the focus was not reduced to that of costs of inputs and levels of activity, but that it should incorporate consideration of the outcomes for patients. At the time of writing this paper, the availability of administrative data on survival rates related to hospital activity had expanded. Maynard made a plea to start using these data, however imperfect, as well as initiating the routine collection of more sophisticated data on patient reported outcomes that could be used to compute quality adjusted life years (QALYs). His view was that such data should then be used to explore variation in performance between organisations and also between hospital consultants.

Subsequently, the Bristol heart scandal in the 1990s+ changed the nation's views about health care quality and led to greater

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+ The Bristol heart scandal centered on abnormally high death rates from paediatric cardiac surgery at the Bristol Royal Infirmary. An official inquiry found "staff shortages, a lack of leadership, [a] …unit… 'simply not up to the task' … 'an old boy's culture' among doctors, a lax approach to safety, secrecy about doctors' performance and a lack of monitoring by management".

oversight and regulation including greater transparency over survival data. For over a decade now cardiac surgeons have been sharing surgeon-specific results, and it is thought this has helped to drive down risk-adjusted mortality rates. Also in more recent years, the NHS has been collecting Patient Related Outcome Measures (PROMs) to measure the health gain in patients undergoing hip replacement, knee replacement, varicose vein and groin hernia surgery in England, based on responses to questionnaires before and after surgery. In arguing that "the goal for 1990 should be routine patient access to data revealing variations in outcomes…", Alan was 30 years ahead of his time.

'The present vision of the NHS, post Körner and with performance indicators and working budgets, is one in which there will continue to be an obsession with costs and activities and a reluctance to link up these data with measures of outcome.'

Whether you are a manager, politician or health authority member, if you really care about patients' health, you should measure outcomes rather than expenditure and activities. Lots of data are available, such as hospital activity analysis (HAA) data, to facilitate this, whether in terms of survival variations or quality adjusted life years (QALYs).

But are you bold enough to care about your patients? The goal for 1990 should be routine patient access to data revealing variations in outcomes between doctors and hospitals so that consumers can choose to live the longest, best quality life possible.

'The operation was a success but the patient died' is an old joke. You do not need to be an academic to make the distinction between inputs, activities and outcomes. Surely it is obvious that expenditure on purchasing the services of doctors, nurses and equipment (inputs), even when combined to produce healthcare activities such as consultations with the GP and visits to hospital, may not always lead to improvements in the health of the patient?

However, maybe this is not so obvious to politicians. Government ministers continue, for instance in their annual NHS reports and in speeches, to emphasise that the NHS is spending more (inputs), and that more patients are being treated (activities). The Opposition's representatives emphasise that spending is inadequate and that they would spend more (inputs), provide more services and offer more care (activities). Politicians are obsessed with debates about inputs and activity but neglect to mention outcomes. Civil servants and NHS managers are also afflicted with this chronic condition of ignoring outcome measurement. New 'industries' have been created in the Department of Health and in health authorities to process, ponder and react to performance indicators. These are measures of activity which point somewhere but it is not clear where in terms of improving the health of patients.

Of course, performance indicators (PIs) concentrate the mind of managers and clinicians and make both parties more conscious of variations in activities. However, it is often unclear whether the average, the lowest or the highest in any PI distribution, is 'best practice'. Best practice, or efficiency, is the cheapest way of achieving an outcome, an improvement, or at least maintenance, of the patient's health

status. But PIs do not relate input to outcome and until they do, as the Department of Health admits, they must be used with extreme caution.

Why are there so few politicians and health service managers interested in outcomes? One excuse might be that outcomes are difficult to measure. It is fine for academics to argue that outcomes can be measured in terms of the additional life months produced by a treatment relative to another mode of care, and the quality of life during those months (quality adjusted life months, QALMs), and quality adjusted life years. However, it is obvious that the data they use are crude and therefore there is a tendency to reject them.

This tendency is reinforced, often implicitly, by the fear that their use will create sets of management problems that are best left unsaid, let alone remedied by those paid to control resource allocation and improve the health of patients.

There are many examples of this fear leading to loss of courage in the face of the closed ranks of the medical profession. All health authorities have access to HAA data which can be used to generate profiles of consultant activity and outcomes. Casual use of these data indicates tenfold variations in postoperative mortality between different consultants.

Such variations in outcome may be the result of poor data or exceptional circumstances. But how many health authority managers have analysed these data, removed such 'warts' and challenged practitioners about them, let alone informed poor ignorant health authority members that they exist?

The Association of Anaesthetists and the Association of Surgeons will publish in the autumn the results of their

extensive investigation of postoperative deaths within 30 days. It will be unsurprising, given HAA data, if they found wide variations in outcomes and that these variations arise not from the lack of resources but from inadequacies in patient management.

HAA data have been available to health authorities for many years but have been underused by managers. It is no good saying that NHS management resources are limited and this explains the lack of attention to outcomes. Surely the priority in management should be the use of these data to improve patient health?

The last thing this should lead to is a witch hunt of practitioners. These data need to be 'fed' to practitioners and the individual should, if necessary, be asked to explain his or her outcomes. At present he or she is unaware of their relative nature because they and managers fail to use available data to inform practice.

It is sad that such data, when available, tend to be ignored. It is even sadder that outcome data (in terms of length of survival and its quality) are not available for many therapies offered by surgeons and physicians. For instance, there is debate about length of survival after breast cancer surgery despite larger investments in cancer registers in various parts of the country.

Even where there is some consensus about survival times, there are few data describing its quality.

The present vision of the NHS, post Körner and with performance indicators and working budgets, is one in which there will continue to be an obsession with costs

and activities and a reluctance to link up these data with measures of outcome.

Whether the concern of the manager is accountability of practitioners or the choice between different healthcare therapies to fund from scarce resources, he or she needs data about costs, the additional life years produced and the quality of these years or months.

Information about costs and processes are useful to management but very limited in revealing variations in outcomes achieved by alternative doctors, let alone the alternative therapies they offer.

So please, if you really care about patients' health, measure outcomes systematically and explicitly and let patients choose how long they can be here with what qualify of life.

19

Ethics and health care 'underfunding'*

Editors' Commentary

The health service is regularly said to be in the throes of a funding crisis. Writing in 2001, Maynard noted this continued "rolling crisis" and challenged the frequent calls for pumping in additional funding. There will always be more demand than can be met, so rationing of resources on the basis of economic considerations of cost-effectiveness will always be needed, even when budgets increase. Pleas for more resources are often fuelled by the interests of the suppliers and providers of health care products and services who always gain when expenditure on health care increases. These pleas also presume that current resources are used efficiently and properly managed. Maynard argued that policy makers should aim to increase efficiency and reduce unjustified practice variations. He also highlighted that, in response to these "crises", policy makers are often tempted to rush into large-scale organisational reforms without careful prior analysis and testing. These reforms often turn out to be costly, disruptive and ultimately ineffective, something we still see happening on a regular basis.

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The Blair government in 2002 responded to these calls for extra funding with an announcement of unprecedented increases in health care spending. Maynard, in his letter to the Lancet, correctly predicted that this would create higher expectations, and because of capacity constraints would generate pay and price inflation. He also foresaw that anxiety over the lack of results would fuel further government initiatives leading to an overblown regulatory structure for the NHS. Instead, he argued that spending should be targeted on the most cost-effective areas and that more should be invested outside the NHS in educational and other programmes that would bring larger gains to population health over the longer term – something politicians find difficult to implement given the short-termism of politics.

Abstract

There are continual "crises" in health care systems worldwide as producer and patient groups unify and decry the "underfunding" of health care. Sometimes this cacophony is the self interest of profit seeking producers and often it is advocacy of unproven therapies. Such pressure is to be expected and needs careful management by explicit rationing criteria which determine who gets access to what health care. Science and rationality, however, are unfortunately, rarely the rules of conduct in the medical market-place.

Introduction

Throughout the world there are "rolling local crises" about 'underfunding' in health care as groups in society press the case for increased expenditure. There are two certainties in life: death and scarcity. A long, good-quality life free of pain, disability and distress from birth to death is the exception

rather than the rule. Most people confront morbidity over the life-cycle and demand cures and care which are expensive and often of unproven benefit. Principles and practices (mostly only implicit) determine who is left in pain and discomfort, who is treated and who is left to die. The policy issue is therefore not whether, but how, to ration access to health and social care. Society and its political representatives are, however, reluctant to confront this reality. Alan Milburn was the first secretary of state to admit publicly the existence of rationing in the National Health Service (NHS) at the National Institute for Clinical Excellence (NICE) conference in December 1999! A health service in "political denial" stunts the development of socially agreed rationing principles, that are openly discussed and accountably applied, and creates a market of special pleading on both the demand–(for example patient advocacy groups) and supply side (for example, the pharmaceutical industry). These are organisations with overlapping goals which result in a single demand: spend more!

Pressure on resources is unlikely to decrease. After all, life is a terminal sexually transmitted disease. Some social gerontologists expect that living to 120 years may become normal this century. Although there is some speculation that, instead of a slow decline to death with increased disability, the period of morbidity will become compressed, with improved quality of life for the elderly and reduced resource consequences,[1–4] the exploitation of the genome map by commerce and rising intolerance of disability amongst the population, are likely to bring with them increased pressure on health care financing. The gap between what is demanded by society and its capacity to provide health care may increase, generating further political dissonance and the

search for contradictory "quick fixes" with slight, if any, evidence bases. The privatisation of the NHS (in the UK) or the introduction of national insurance (in the USA) are characteristic "panaceas".

Who claims there is underfunding of health care? What is the basis of their claims? What ethically founded rules of conduct should determine rationing?

Who claims there is underfunding?

The debate about underfunding in health care is ubiquitous and debates about the NHS are replete with assertion (rather than analysis and evidence). Provider and consumer groups regularly review the resources of the NHS, conclude it is underfunded and lobby for reform. Much of this activity is not evidence based. A group financed by Glaxo Wellcome and chaired by a former chief executive of the NHS, Sir Duncan Nichol, concluded that the service was underfunded and could be "rescued" only by extensive use of patient charges.[5] Three economists, Stoddart, Barer and Evans,[6] confronted by similar sectional interests in the Canadian policy arena in 1979 and 1994, concluded their review of user charges by saying that the proposals of such advocates were "misguided and cynical efforts to tax the ill and/or drive up the total cost of health care whilst shifting some of the burden out of government budgets". One of these authors, Evans, has gone on to argue that advocates of user charges are like zombies: however much you slay them, they return, cheerfully proposing the same misguided policy. His explanation of this behaviour is the link between the advocates and commercial interests.[7]

Poor policy advice is regularly given in the UK as well as Canada. The Adam Smith Institute[8] recently advocated user charges paid in proportion to income and up to a limit of £120 per year, with the poor paying no more than £60 per year. They argued that this "co-payment model would bring urgently needed new money into the UK health care system". Whilst the source funding for this study is unclear, its launch again involved the supply-side in the shape of pharmaceutical companies and pharmacy groups. Once again the zombie reappears, having been resuscitated by those whose incomes stand to benefit directly from the additional £2.2 bn it was hoped would be brought into the health care system.

Another supply-side group, the British Medical Association, (BMA) has repeated a review first carried out in 1970[9] and again predictably concluded that the NHS is underfinanced. Its proposed solution is that expensive new technologies should be financed by increases in private insurance.[10] The possibility that such technologies might be of marginal cost-effectiveness, are very expensive and probably too costly to insure was not considered. In fact, on both sides of the Atlantic, the supply-side advocates of increased spending (public or private) are paradoxically at risk of not serving their members' interests, because of the indirect consequences of their proposals.

The illogicality in the BMA's conclusions highlights a nice paradox for the critics of the NHS. As Margaret Thatcher argued when introducing the "internal market" reforms in 1989, if the NHS were efficient there would be no need for the private sector. If the NHS were able to focus its resources efficiently, it would provide only services which

were cost effective. Yet it is these services, epitomised by interventions such as hip replacements and cataract removals, for which there are NHS waiting lists and where NHS consultants augment their income with private practice. Such interventions are eminently insurable and are the core business of private initiatives such as the British United Provident Association (BUPA) and the Private Patients Plan (PPP). However, the BMA want these activities to be more extensively provided in the NHS, with expensive major interventions left to private insurers. It is these activities which are unlikely to be insurable. Pushed to their limit, the BMA proposals would destroy the private sector! The BMA thus seeks to advance its members' pecuniary interests by expanding the NHS. As with the Nichol report, such illogicality goes unnoticed in the pursuit of increased health care expenditure–and higher BMA members' incomes.

Such paradoxes are not unique to the UK. In the United States, the 2000 presidential race was dominated by debate about competing programmes to fund pharmaceuticals for the elderly. Medicare in the USA provides health care for the elderly but does not reimburse pharmaceuticals. "Grey power" obliged Bush and Gore to confront the issue in the face of rapidly escalating drug costs about which the elderly were protesting. Bush's proposals, though modest, may lead to considerable increases in public expenditure, which sits oddly with Republican ideology, and would strain considerably the relationship between the president and those in the industry who contributed so generously to his campaign. Elsewhere in the US health care system there is pressure of another kind to address alleged underfunding. The coverage of the Medicare programme is determined by eligibility for certain social security benefits. Many poor

are excluded and this results in millions of children in low income families having limited access to health care. As a consequence there is continuous lobbying and congressional debate about the case for increased public funding of this vulnerable group. But the prospect of success is remote. The continuing lament in the USA about children's access to care is a reflection of the relative powerlessness of the supporting lobbies. Extending Medicaid or introducing "Kiddie-care" would bring only modest gains to insurers and other commercial interests such as the pharmaceutical industry!

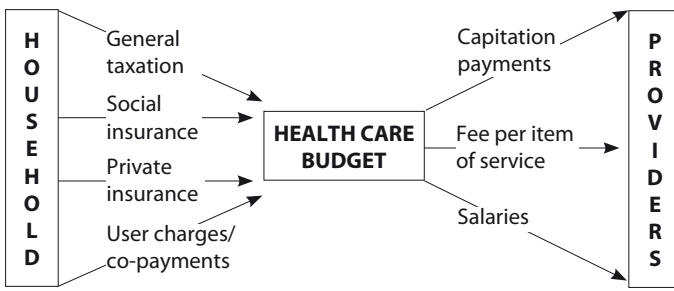

Figure 1

What is the basis of 'underfunding' advocacy?

Supply-side advocates understand some basic economic accounting very well. Reinhardt[11] has emphasised the implications of the income = expenditure identity in health care. Resources are owned by households, who acquire their command over resources from selling their labour (wages), and owning income-earning assets (profits, interest and rent). It is they who fund health care, and they do it through four pipelines: taxes, social insurance (another form of taxation), user charges and private insurance premium payments. (See

Figure 1.) This expenditure flows through the four pipelines to become income for the supply side.

The flow of household funds down these pipelines determines the health care budgets, both private and public. Budgets are distributed to physicians (salaries, fees for service and capitation payments), hospitals and other providers such as the pharmaceutical industry. Demand-side expenditures are identically equal to the incomes of providers (net of transaction costs).

Expenditure always equals income. Whenever provider groups such as the BMA or the pharmaceutical industry support more expenditure, they are also supporting increased rewards for themselves. They will oppose single pipeline funding for the reason that it is harder to manipulate in their interests (the publicly stated reason is likely to be on grounds of freedom of choice). The impact of proposed expenditure increases on the health of the community will receive little attention–after all, that is not, for them, the main purpose of the system. Increased funding may not improve patient health and may result merely in increased affluence for providers!

Evans's discussion of zombies[7] is a sharp demonstration of how difficult it is to prevent rent-seeking behaviour. There is a consensus amongst most health economists, although the evidence base is incomplete, that single pipeline funding enables effective cost control. Thus those countries which are single-pipeline financed by taxation can, by control of public expenditure limit cost inflation better than countries where funding is fragmented (for example, the USA). Once funding is fragmented, direct control of one pipeline tends

to be compensated by inflation in funding via another. Thus, it is argued, provider incomes are best controlled in tax-funded systems. Whether the control is too strong requires a view about what the health care system is for, i.e. the pursuit of either the cost-effectiveness of the additional care that might be provided or the value of the expected additional outcomes for patients both actual and prospective.

The nice issue in debate thus comes down to the extent to which expenditure increases generate merely additional provider incomes or improve patient health. Macro-economic cost control needs to be supplemented by micro-economic incentives which ensure efficient resource use.

Variations in resource allocation

In all developed countries there is evidence of considerable variations in medical practice. These small area variations were highlighted by Wennberg[12] in the late 1970s when he and his colleagues found considerable differences in the volume of health care activities delivered to populations of two similar areas, New Haven and Boston, in New England. McPherson, Wennberg and colleagues identified similar differences across countries.[13] McPherson[14] explored the effects of demand- and supply-side variables on variations in Britain.

There is also evidence of considerable variations in levels of activities between practitioners and differences in mortality between hospitals. Kind described hospital variations in mortality in England in 1987.[15] More recently Jarman and colleagues have charted similar variations.[16] It is remarkable that the NHS has collected activity and mortality data for decades but not used it in management.[17]

Important conclusions to draw from this literature are that variation in activity and outcomes are ubiquitous and that policy analysts and managers in health care systems worldwide have incomplete awareness and understanding of them and generally fail to manage them efficiently. An implication of these variations is that resource allocation is inefficient. This point of view is reinforced by lack of evidence to support use of many routine interventions in health care. Cochrane[18] argued that a remedy for this ignorance was randomised controlled trials (RCTs). Whilst investment in RCTs has risen and understanding of some clinical practices has increased, the knowledge gap remains considerable.[19]

Furthermore, ignorance about how to translate evidence into practice is considerable. Thus whilst the Cochrane collaboration is gradually improving the knowledge base about "what works" in medicine, such knowledge is not applied swiftly and routinely.[19] For instance the Harvard life-saving study identified over 500 cost-effective interventions and found no relationship between cost-effectiveness and the implementation of life-saving interventions. Furthermore it was found that there was no relationship between cost-effectiveness and implementation in government regulations.[20] Decision makers, by failing to apply evidence of cost-effectiveness, ensure people die too early!

Thus whilst the cacophony of the advocates of increased spending on health care is ubiquitous, the use of existing budgets is characterised by variation and inefficiency. Practitioners and regulators adopt interventions which are demonstrably not cost-effective. In doing this they enhance the perception of underfunding and reinforce the pressure for increased expenditures (which increase their incomes!)

The chronic lack of transparency in decision making and accountability for actions should, in principle, weaken the case for increased health care expenditure: why pour good money after bad! However, lack of public awareness, fear of ill health and death and the political dynamics of the health care market-place obscure the limitations of a knowledge-base and facilitate the dominance of "experts" who declare that under-funding is "the" policy problem.

The rationing debate

One way of subverting these processes is by bringing the economic paradigm to the centre of the resource allocation or rationing debate in health care. Scarcity is ubiquitous and individuals, groups and governments have to manage rationing processes. It is not a question of whether to ration but how: what principles should determine individuals' access to goods and services?

In health care, argument about the management of the difference between finite means and infinite ends or underfunding is particularly intense. Rationing of access to care determines who will live in what degree of pain and discomfort, and who will die. Williams defined rationing as occurring "when anyone is denied (or simply not offered) an intervention that everyone agrees would do them some good and which they would like to have".[21]

These two elements, "doing some good" or beneficial effect on patient health status, and "like to have" or patient preference for treatment, are central issues in the underfunding debate.

The medical paradigm in the age of the Cochrane collaboration continues to focus principally on the systematic appraisal of the evidence (with the strong preference for RCTs) of clinical effectiveness. Thus evidence of efficacy, sometimes in relation to placebo and sometimes in relation to inappropriate therapeutic comparators, determines whether a new drug is registered and given a product licence by the regulating authorities. The effect may be small, for narrow groups of patients, and detected over short trial periods where side effects are not evident. However, this is the evidence which is used to market the product and spread its use, appropriate and inappropriate, by practitioners.

What is clinically effective may not be cost-effective. But any product which is cost-effective is clinically effective! From the economic point of view, evidence of effect is insufficient to determine the use of a therapy.[22] With the health care budget finite, the attention of decision making has to be focused on the value of what is gained (the health benefit) and the value of what is given up (the opportunity cost). To get "the greatest bang for the buck", it is imperative to maximise the former and minimise the latter.

Imagine there are two therapies X and Y to treat condition A. Therapy X produces five years of good quality life (5 QALYs–Quality Adjusted Life Years). Therapy Y produces ten years of good quality life (10 QALYs). If patients, their carers and doctors were asked to choose between X and Y, they would elect for Y, which produces the greatest health benefit for the patient. But what if therapy X costs £100 and therapy Y costs £1,000? Therapy X produces one year of good quality life for £20. Therapy Y produces one year of good quality life for £100. Therapy Y produces five more

QALYs at an additional cost of £900, ie the incremental cost of Y is £180.

If the total available budget for this group of patients was £500,000, investment in therapy X would produce 25,000 QALYs and investment in therapy Y would produce 5,000 QALYs. If the social goal is to maximise QALY production, therapy X is the best investment even though therapy Y gives greater clinical benefit.

However, even if data are available about the costs and benefits of interventions, their use is problematic. Often such data are ignored: medical decision makers focus on clinical effectiveness and royal college practice guidelines usually ignore economic issues. The Scottish Intercollegiate Guidelines Network (SIGN) also ignores economic issues in devising its guidelines.

Other bodies, for example NICE, offer advice which is based in part on economic data. Often this "advice" is followed slavishly even though it might not represent the best use of local resources. The work of NICE and the Australian Pharmaceutical Benefits Advisory Committee is never easy because producer lobbies can "influence" the evidence-base and strive vigorously for approval and a return on their investments. Indeed there is much debate about whether the Pharmaceutical Benefits Advisory Committee, the Australian pioneer in the use of the economic "fourth hurdle" (the requirement to demonstrate cost-effectiveness as a condition for reimbursement by Medicare), has been "captured" by the industry and "neutralised".[23]

The National Institute for Clinical Excellence was the product of a long debate[24] and, as is shown by the circumventing of

the Australian Pharmaceutical Benefits Advisory Committee, life can be precarious in a world dominated by political expectations (so often over ambitious and unrealistic) and expediency. However, these bodies represent substantial developments in the application of the economic paradigm to the allocation of health care resources.

Efficiency alone is unlikely to be the sole determinant of resource allocation. Equity issues, whether they are based on social class and/or fair innings arguments, may be used to weight benefit and direct resources into activities which are demonstrably inefficient. Such weights need to be explicit and adopted as a result of social consensus.[25]

Until the principles of resource allocation or rationing are made explicit, agreed by social consensus and applied, health care delivery will exhibit variation in practice and outcome and the case for increased funding will be incomplete. Regrettably this will not inhibit providers and patients from behaving like Oliver and demanding "more". Unlike Oliver, however, who was starved and hungry, there is less evidence that providers are so deprived!

Overview

The rules of conduct (or ethics) in the medical marketplace are rarely explicit. The economic perspective is clear: to maximise benefits (health improvements) from limited resources by targeting resources at those activities high in the cost-QALY league table. Whether this economic perspective should dominate depends on society's objectives, but it has a strong claim for use, probably with equity weighting, in a world of scarce resources. Its application could counter the self interest of providers, make exchange relationships

transparent and oblige decision makers to be accountable in this world as well as the next! Slow movement towards this nirvana is evident but this does not still the chorus for increased expenditure to remedy often unsubstantiated claims of "underfunding".

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20

Funding for the National Health Service*

Sir – the UK government is pounding the National Health Service (NHS) with new funding that will result in nearly 10% of gross domestic product being spent on health care in 5 years.[1,2] Although many welcome these increases, there is a risk that the NHS may be killed by kindness.

Spending increases create higher expectations for quality and access from the public, and from professionals for better pay, conditions, infrastructure, and equipment. However, supply creates its own demand and more spending reveals previously unmet demands in an increasingly medicalised society. In continental Europe, higher expenditure is still clearly accompanied by dissatisfaction with local services.[3] International experience shows that there is no level of expenditure at which all public and professional expectations can be met.

More investment in the NHS will only efficiently produce health gains if it is carefully targeted at interventions of proven cost-effectiveness. Ideally priorities, assessed by evidence of relative cost-effectiveness, should be set across the whole of health-related activity (National Service Frameworks,

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waiting times, National Institute for Clinical Excellence, and the myriad of other government priorities). Even if this was done, not all demand will be met.

If priorities were pursued efficiently, however, there are severe capacity constraints that create pay and price inflation (eg, agency nursing costs). There is a risk that much of the new funding will evaporate into higher pay with little effect on volume and quality. Increases in the supply of labour and beds by overseas recruitment, private contracting, and fining local authorities that do not meet delayed discharge targets may also be inflationary and ameliorate capacity issues only slightly in the short term.

The huge investment in medical care compared with that in population health-improving strategies is a wasted opportunity, since investing outside the NHS may be more cost effective. Investment in education rises lifetime earnings, which is associated with reductions in smoking and the adoption of other behaviours conducive to health. Similarly, the reduction of poverty leads to investments in human capital and behaviour changes that improve the long-term health of the poor and their children and helps reduce inequalities in health.[4]

The current redisorganisation of the NHS structures supposedly supports the funding increases. These changes are expensive, have used scarce managerial effort much needed to accelerate service change, and are evidence-free. These policy-making characteristics have plagued the NHS for decades despite advocacy of cautious evidence-based reform.[5]

Difficulties in policy implementation may panic the government into more initiatives which create an even more bloated and invasive regulatory structure of uncertain effect and cost.

Such action will precipitate calls for the dismantling of the NHS, which would fragment the funding and provision of care and redistribute resources to richer patients and richer providers. This effect is not presumably the intention of the government but may be the result of its reckless neglect of evidence and reality. Most in the NHS will strive to avoid this outcome.

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21

Developing the health care market*

Editors' Commentary

The Thatcher government introduced quasi-markets in 1991 (the "purchaser-provider" split) in an attempt to improve efficiency in the NHS. In this overview, Maynard highlighted some of the key deficiencies in the NHS (e.g. poor data on costs and outcomes, unjustified variations in practice, perverse incentives and system fragmentation). He critiqued the market reforms for not having been properly tested and evaluated and for not addressing several of these weaknesses, but he also pointed out potential benefits of the new approach. However, he correctly identified that some of the constraints built into the system limited contestability and so would not sufficiently erode market power of the providers or reduce costs and improve quality. These constraints on the market include political constraints, such as hospitals not being able to fail, informational constraints, such as purchasers having limited information about the quality of care, and transaction cost constraints, especially for purchasing decisions on behalf of patients with chronic diseases who need complex packages of health care. Subsequent experience of further

* Maynard, A. (1991). Developing the Health Care Market. *The Economic Journal*, Vol. 101, No. 408 (Sep., 1991), p.1277-1286.

attempts to inject competition (and choice) into the English NHS over the last quarter of a century have shown these market constraints to be even more powerful than Maynard originally predicted – to the extent that in recent writings he is starting to question the value of the purchaser-provider split.

I. Introduction

The structure of health care services varies enormously from country to country and the responses of policy makers to these difficulties exhibit similar characteristics. There are a number of features of health care systems which make monitoring outcomes and policy formulation especially problematic – poor data on outcomes and perverse incentives facing agents are good examples. In the UK, resource allocation has been effected within the National Health System, a public health care system *par excellence*. Recently, however a number of reforms have been effected which have increased the role of quasi-markets – there has been an attempt to enhance market contestability in health care provision by formalising relationships between buyers and sellers.

This article investigates and evaluates the reforms which have occurred. Section 2 examines the characteristics of the health care market and Section 3 identifies the objectives of the health care system. Section 4 discusses the attempts to create a health care market and Section 5 ends with some concluding comments.

II. The characteristics of the health care market

(i) Poor data. In health care systems it is commonplace for policy to be designed and executed in a data free

environment! There is an absence of data about inputs, activities and outcomes as well as ignorance about the relationships between these variables. Public health care systems, such as the British National Health Service (NHS), have no cost data. Furthermore the expenditure data that are available are related to functions (e.g. the cost of staff, of beds and of drugs) and it is not possible to identify the opportunity cost of a hospital episode e.g. the cost to the hospital of repairing a hernia. Expenditure data are not linked so that primary care, hospital care, community care and household production information are collected in a fragmented manner which makes the costing of a treatment episode very difficult e.g. integrated cost data from the onset of a myocardial infarction (a heart attack) through the care system to recovery in the household is not available in all health care systems. Some health care systems, for instance those that are insurance based, produce price data routinely but these prices may bear little relation to costs and the data are fragmented across the component parts of the health care system.

Data about activities and outcomes vary in quality. In most countries there are data about activities and the processes of care and sometimes cost data are used to cost patient bed days and physician visits. However, such data are ambiguous for identifying the efficiency of processes of care. A familiar joke is that the procedure was cheap, the operation was a success but the patient died! The health care sector is characterised by poor outcome data and whilst this has been recognised for centuries, little has been done to remedy this ignorance. For instance, Frances Clifton, physician to the Prince of Wales in 1732, argued:

> 'In order, therefore to procure this valuable collection, I humbly propose, first of all, that three or four persons should be employed in the hospitals (and that without any ways interfering with the gentlemen now concerned), to set down the cases of the patients there from day to day, candidly and judiciously, without any regard to private opinions or public systems, and at the year's end publish these facts just as they are, leaving everyone to make the best use he can for himself'.
>
> (Frances Clifton, quoted in a *Lancet* editorial, 1841/42, pp. 650-51)

Often outcomes are proxied with process measures. However, the appropriate measure of the outcome of an intervention is enhancements in the duration and quality of the patient's life. Data about survival duration (mortality) are few and fragmented e.g. there is an absence of record linkage and follow-up through the different stages of treatment and back into the activities of everyday living in the community. Instruments to measure the quality of life are crude and experimental, encapsulating assessment of the impact of treatments on the physical, social and psychological functioning of the patient and her carers (Kind, 1988).

(ii) Variations and ignorance. What data are available show that there are enormous variations in costs and clinical activities. These variations are observable between clinicians in primary care and in the hospital system. Similar patients with breast cancer may have radical surgery (mastectomy), minor surgery (lumpectomy) and an array of different regimes of chemotherapy and radiotherapy. For given presentations

cancer specialists offer a wide range of services (Priestman, 1989). The patient's 'fate', in terms of what treatment they receive, depends on to whom they are referred: clinicians within a particular hospital, district or region offer very different treatment regimes to 'remedy' similar diagnoses. The nature and causes of these variations are being explored but there is little consensus amongst clinicians about 'best practice' (see e.g. Anderson and Mooney, 1990).

The reason for this absence of consensus about practice is an acute ignorance about input-output relationships in medicine. Cochrane (1972) argued that the majority of health care therapies in use in the 1960s were unproved. Fuchs (1984) argued that 10% of health care expenditure reduced health status, 10% had no effect, and 80% improved patient health. The problem is that no one knew which therapies are in the 10 and 80% categories! Black (1986) argues that 10% of treatments were proven whilst researchers at the Rand Corporation in the USA assert that 30% of health care activities have no effect on health.

(iii) Perverse incentives. In some areas of health care there is some knowledge of input-output relationships. For some procedures, for instance open heart surgery and organ transplants, there is a relationship between surgical volume and mortality outcomes such that if surgeons do not carry out some minimum volume of activity (i.e. 'keep their hand in'!), they are more likely to kill their patients (see e.g. Hughes, Hunt and Luft, 1987), However, such knowledge is often ignored by managers and clinical decision makers and knowledge is not translated into practice (Woodward and Stoddart, 1990). The reason for this is perverse incentives. Patients and producers in public and private health care

systems have few incentives to economise and use resources efficiently because of moral hazard and third party payers.

Furthermore, the fragmentation of the health care system creates incentives for cash limited decision makers to shift patients and hence costs from their budgets onto those of other component parts of the system. Thus in the NHS a manager on the cash limited hospital system may shift drug costs onto the primary care system. With the hospital using cheap generic drugs and the primary care GP prescribing expensive brand named drugs this behaviour increases the NHS drug bill with no significant benefits in patient outcome.

In summary, there is not a simple linear relationship between health care inputs and outcomes, enhancements in the length and quality of life. Indeed the nature of the input-outcome relationship is largely unknown, with significant variations in clinical practices in all health care systems. The continuation of this ignorance is a product of poor incentive structures in which inefficiency may be encouraged rather than penalised.

III. The objectives of the health care system

Debates about the design of health care systems arise from ideological disagreements. The liberal and collectivist alternatives are nicely summarised by Gallie (1956, in P. Laslett (1970)).

> The kernel ideas of liberal mortality, commutative justice, the meritorious individual, the moral necessity of free choice and contract (especially in economic life) and the self limiting character of good government

> are countered by the ideas or distributive justice, the contributing individual, freedom as essentially freedom to be not to get, and collective action in economic affairs. It is as if the parable of the talents was countered by the parable of the wine yard.

In Britain even Mrs Thatcher is a collectivist in the case of health care. She argued at the Conservative Party Conference in October, 1982 that:

> The principle that adequate health care should be provided for all, regardless of their ability to pay, must be the foundation of any arrangements for financing the health service.

The rejection of the liberal objective and the use of willingness and ability to pay as the means of allocating health care resources, necessitates careful definition of the collectivist alternative. If the collectivist is to allocate resources on the basis of need, what is need?

One definition of need involves two steps, first a technical judgement: which patients would benefit most from care in terms of enhanced duration and quality of life (e.g. quality adjusted life years or QALYs) per unit of cost? Second, a social judgement: is it worthwhile to treat patients? how much is society (or its political representatives) prepared to pay to purchase an additional QALY? This approach means that resources will be allocated in relation to the patient's capacity to benefit. Resources and treatments will be allocated to those patients who benefit most and, with resources limited, it is possible that patients will be denied beneficial treatments because of the budget constraint. The achievement of this allocation will be that resources

are used efficiently and equitably. However, for this system of 'rationing' to function effectively, data about costs and outcomes are essential as are appropriate incentives for purchasers and providers.

IV Developing a health care market

(i) The Government's reforms. Against this background the British Government decided to develop quasi-markets in health care (Department of Health (1989*a,b*)). The reforms reflected an intense debate over the preceding five years in the UK (see e.g. Enthoven (1985), Maynard (1985)) and are similar to those proposed by the Decker Commission in the Netherlands (van de Ven, 1989). The reforms have separated out the roles of purchaser and provider and sought to enhance market contestability by formalising relationships between buyers and sellers in the form of contracts which articulate the volume, price and quality characteristics of transactions.

The principal NHS purchaser is the District Health Authority. The roles of this organisation are to assess local health care needs and purchase cost effective treatments to meet these needs within the available cash limited budget. A secondary purchaser is the GP budget holder. Larger primary care practices can elect to hold budgets for the purchase of diagnostics, outpatient care and some non-emergency inpatient treatments for the patients on their lists. These purchasers can set contracts with any providers with whom they wish to trade, public or private. NHS hospitals have been allowed to elect for Trust status which gives them greater freedom to manage labour and capital and select the portfolio of services they will provide for sale to purchasers. The creation of NHS Trusts is gradual (57 in 1991 and 120 more

applying for Trust status in 1992) and the residue, Directly Managed Units (DMUs), continue to be controlled by District Health Authorities. The Conservative Government intends that in time all DMUs should become Trusts.

In the first year of trading the contracts are largely for blocks of work for a given budget. In time contracts which specify service prices and volumes may emerge and the quality requirements in these agreements may become more precise. The effect of these arrangements is that hospitals have no income except that `won' in the market from the contracting process. This clearer definition of purchaser and provider roles creates an incentive for managers to be better informed about market opportunities and this will facilitate the creation of better data to inform market choices and monitor contract performance.

(ii) The advantages of these reforms. The reforms are untested and were implemented wholesale in April 1991. In principle they should enhance the efficiency with which NHS resources are used by the twin processes of 'glasnost and perestroika'. There are several reasons for some optimism.

The clear identification of trading roles will make it easier to identify what services are being traded by whom at what price and quality. In principle this glasnost should enhance the accountability of managers and clinicians. The information created by the processes of trading should make it easier for traders to identify opportunities for gain and restructure trading relationships. If market contestability can be created and sustained substantial welfare gains may be achieved. The pace of this process is uncertain but its effects may be significant, obliging managers to re-structure

the supply side in a fashion which reflects current market demand rather than past history.

Another potential advantage of the reforms is the greater integration of primary and hospital care. General practitioners are free to refer their patients to any hospitals. The local purchaser has to set contracts with her chosen providers and then ensure that GPs' patients go to these providers. If they do not and patient traffic goes to providers who are not contracted to the local purchaser, NHS money follows the patients and the District Health Authority will be in financial difficulties. Thus the reforms require that purchasers meet GPs requirements and thus for the first time, purchasers have a strong incentive to identify and meet GP preferences.

(iii) Some problems with the reforms. The scope for competition in any market is determined by property rights. Property rights define: how resources can be used (e.g. there can be short term contracts for newly recruited doctors in NHS Trusts); how resources cannot be used (e.g. the NHS Trusts' ability to borrow capital and sell assets is constrained); the use and exchange rules for assets. A competitive market with fully transferable property rights would lead to `survival of the fittest' with inefficient managers, clinicians and institutions being driven out of the market place. Adam Smith summarised this competitive market nicely:

> It is not from the benevolence of the butcher, the brewer and the baker, that we expect our dinner, but from their regard to their own interest. We address ourselves, not to their humanity, but to their self-love, and never talk to them of our necessities but to their advantages.
>
> (Smith [1776], 1976. 1, pp. 26-7)

However, the Government has set rules which impose restrictions on the reformed health care market. The use and disposal of capital resources is constrained and, to inhibit the use of monopoly power, a 6% return on assets has been set as a maximum. The Government, faced by labour market organisations of considerable economic and political power (e.g. the British Medical Association), has both failed to define some rules (e.g. no constraints on GP referral practices have been permitted) and defined restrictive rules (e.g. setting centrally junior doctor staffing levels in NHS Trusts). The Government has created significant market mechanisms in the health care system but sought to constrain, by the narrow and imprecise definition of property rights, their working.

The reasons for this caution are familiar. By their very nature some hospitals are local monopolists or, if members of an oligopoly, can formulate `agreements' to divide the market and manipulate prices. Furthermore there is some evidence that competition in health care markets is based on quality rather than on price, i.e. sellers compete for market share by emphasising the quality of the health care processes, (usually measured in the pile of carpet and the shininess of machines).

The consequence of the market power of providers and of quality competition is cost inflation. These effects may be augmented by the reduction of the monopsony power of the NHS, as wage bargaining in a very labour intensive industry is decentralised and the pay of workers is decided at the local level. In a cash limited NHS these forces will lead to the delivery of declining service volumes at unknown levels of quality in terms of patient outcome. The influence of these arguments on the politicians was significant as they

and their advisers sought to constrain market freedom to create a 'smooth take-off' for the reforms in an election year (1991-92).

Another way in which a 'smooth take-off' was sought was by restricting the power of the contracting process. The contracts between purchasers and providers are not legally binding, they are 'understandings' between the two parties. The importance of this type of arrangement depends on whether competition is seen as combat or collaboration. The predominant view of competition is that it is a process 'red in tooth and claw' which produces survival of the fittest. Adam Smith, contradicted this view and his arguments in the Wealth of Nations in his Theory of Moral Sentiments, thus:

> 'Those general rules of conduct when they have been fixed in our mind of habitual reflection, are of great use in correcting the misrepresentations of self-love concerning what is fit and proper to be done in our particular situation….The regard of those general rules of conduct, is what is properly called a sense of duty, a principle of greatest consequence in human life, and the only principle by which the bulk of mankind are capable of directing their actions'.
>
> (Smith [1790], (1976), chapter IV, para. 12, chapter V, para I, pp. 160-62)

The sense of duty and moral obligation to colleagues and clients is clearly important and the crude application of 'so called' market principles may not enhance the efficiency of resource allocation. Contracting in many markets is a

long term collaborative undertaking which reflects the self-interest of the purchaser, who requires an assurance of a reliable supply of good quality services and merchandise, and the provider, who requires the assurance of a reliable market for her output. These relationships are evident in many markets. Such trading relationships are not short term expedients which reflect transient market advantages. They reflect the mutual self-interest of purchaser and provider which may be best enhanced by long term contractual relationships which reflect their interdependence.

The role of the consumer in the reformed health care market of the UK is limited. The purchaser, be he the District Health Authority manager or the GP budget holder, is the guardian of the patients' interests. Whilst the purchasers may seek to reflect consumer preferences by market research the incentives for this to happen are mute. The patient's freedom to shift her custom to alternative suppliers is limited because of the nature of the health care market. For the consumers 'voice' to affect resource allocation purchasers and providers will have to be made more accountable by creating both appropriate information about patients' preferences and suitable incentives.

The behaviour of consumers, purchasers and providers is a product of information and incentives. The price data that are emerging are crude and show considerable variations within therapeutic categories. These variations, as much as seventeen fold in some specialties, are a product of accountancy practices and variations in hospital length of stay. The publication of these data is focusing attention on variations in practices. However these may either be the product of patient case severity, or reflect a better quality of

care, or be indicators of inefficiency in resource allocation. A central piece of information for trading is information about the quality of care in terms of process (was the hospital clean and were post operative infections as low as possible?); and outcome (the duration and quality of life). Outcome data is needed to facilitate contracting: enabling purchasers to identify good providers, and enabling providers to demonstrate their cost effectiveness.

It is also central to the process of prioritisation. The purchaser has a central role in identifying the relative costs of producing a desired health outcome (e.g. a quality adjusted life year or QALY) from alternative treatments. He has to identify and buy those treatments which meet the local population's health needs (defined earlier as the ability of different patients to benefit from care).

Data to facilitate this central function of the NHS health care market are poor. A crude method used in the UK is to adopt one of many competing quality of life measurement instruments, the Rosser index which focuses on alternative states of disability and distress (Rosser, Kind and Williams (1982)), and to use expert judgements to identify changes in these states before and after medical interventions. Such judgements facilitate the mapping of survival and quality over time (Fig. I). The illustrative outer curve A in Fig. I is the survival/quality of life path of a patient with chronic renal failure who is transplanted. Curve B is for a patient with chronic renal failure who is treated with dialysis. The hatched area is a measure of the advantage in terms of QALYs of therapy A over therapy B.

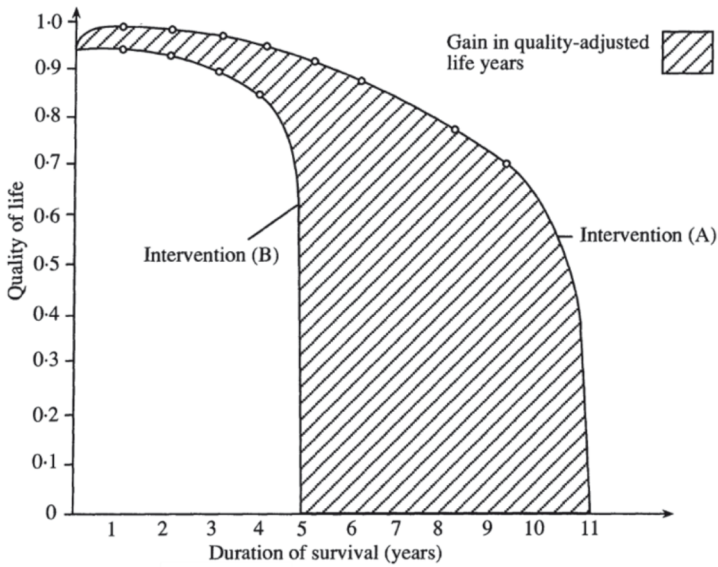

Fig. I. The Measurement of Enhanced Duration and Quality of Life.

The methods used to produce such estimates are crude but do facilitate the production of a 'league table' which ranks the cost of producing a QALY by investing in competing treatments. An example of these 'guestimates' is set out in Table I. The implication of these data is that resources should be invested by purchasers in treatments which produce QALYs at low cost. These data raise not only interesting measurement issues but also significant ethical, social and political problems. Their advantage is that they are explicit and open to challenge. Choices are already made on the basis of implicit criteria reflecting guesses, prejudices and hope. Without explicit and more scientific measurement of the relative cost effectiveness of competing therapies

the emerging NHS market will fail to meet its potential in enhancing welfare.

Table 1 – Quality Adjusted Life Year (QALY) of Competing Therapies

	Cost/QALY (£ Aug 1990)
Cholesterol testing and diet therapy only (all adults, aged 40-69)	220
Neurosurgical intervention for head injury	240
GP advice to stop smoking	270
Neurosurgical intervention for subarachnoid haemorrhage	490
Anti-hyperintensive therapy to prevent stroke (ages 45-64)	940
Pacemaker implantation	1100
Hip replacement	1180
Valve replacement for aortic stenosis	1140
Cholesterol testing and treatment	1480
CABG(I) (left main vessal disease, severe angina)	2090
Kidney transplant	4710
Breast cancer screening	5780
Heart transplantation	7840
Cholesterol testing and treatment (incrementally) of all adults 25-39 years	14150
Home haemodialysis	17260
CABG(1) (1 vessel disease, moderate angina)	18830
CAPD (2)	19870
Hospital haemodialysis	21970
Erythropoietin treatment for anaemia in dialysis patients (assuming a 10% reduction in mortality)	54380
Neurosurgical intervention for malignant intracranial tumours	107780
Erythropoietin treatment for anaemia in dialysis patients (assuming no increase in survival)	126290

Notes: 1. CABG = coronary artery by-pass graft. 2. CAPD = continuous ambulatory peritoneal dialysis.

Sources: Department of Health (1990), Pickard et al (1990), Teeling-Smith (1990), Williams (1985), Department of Health & Social Security (1986), Hutton Et al. (1990).

Conclusion

The reform of the National Health Service has created freer market structures which are aimed at improving resource allocation. However, political constraints have led to the imposition of market rules which restrict contestability as politicians seek to minimise the consequences of the reforms in marginal constituencies. The paucity of data to inform market exchanges has inhibited efficient contract setting but led to a recognition of the need for more information about cost effectiveness both to inform trading and facilitate the processes of prioritising the many competing treatments that are available but cannot all be funded in a cash limited NHS. The desired direction of change induced by these market enhancing reforms is efficiency enhancing but the pace, even with substantial constraints in place, is such that it is generating substantial opposition from providers whose markets are threatened by erosion if not elimination. The Government is seeking to maintain patient access at zero price to a publicly funded health care system whilst creating a market on the supply side. The outcome of this major social experiment is uncertain and more likely to be determined by the need for political survival rather than by the demonstrable efficiency or inefficiency of developing the market in health care. Whatever the fate of these experiments with health care markets they provide a challenge to economists and other social scientists to evaluate their effects so that future policy formation is better informed than in the past.

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22

International healthcare reform: what goes around, comes around*

Editors' Commentary

Writing an introduction to a new edition of "The Public Private mix for Health Care", Maynard summarised the problems faced by the health care systems of developed countries and the various ways in which countries seek to tackle these problems. He argues that some show undeserved faith in free markets and private insurance which carry the risk of associated perverse incentives and increased costs and he suggests that approaches based on social solidarity tend to be more cost-effective in terms of health outcomes for a given level of expenditure.

All health systems face the twin problems of rising costs at the same time as an expectation for enhanced patient choice, quality and outcomes. One common policy response is the launch of health service reforms (often in repeated cycles) which are untested, poorly informed by the evidence and do not tackle some of the core causes of inefficiencies

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* This chapter first appeared as Maynard, A. (2005). International healthcare reform: what goes around, comes around. p.1-5 in The Public-Private Mix for Health Care (edited by A Maynard), Nuffield Trust and Radcliffe Publications.

or introduce better incentives. This cycle of often repeated health care reforms – which consumes resources and has high implementation costs, but often does not fundamentally improve health care – is described aptly by Cooper, the New Zealand health economist, as "jumping on the spot".

The latest NHS health care reforms (2010) undertaken by the coalition government are critiqued in the following article, which again demonstrates the flawed belief that altering structures of delivery will automatically produce improved efficiency and outcomes.

Introduction

This book, written over 20 years after the publication of a similar collection of essays,[1] examines again the complexities, frustrations and progress of healthcare systems in a leading group of rich countries. Like its predecessor, it offers few panaceas, but the insights of its authors show that the political and economic challenges of healthcare reform are now better articulated, if still often largely unmet. The resilience of some of the obstacles to efficient reform articulated over 20 years ago and examined again here demonstrates the power of public and private interest groups in resisting changes that will benefit the patient. The ongoing battle between funders, providers and consumers is the business of healthcare, like many other markets. The characteristic of healthcare, however, is its resistance to change and the preservation of inefficient practices by management techniques appropriate for Dickensian times.

Despite differences in culture, history and resourcing, the nature and performance of healthcare systems worldwide are very similar. Political debates about healthcare reform are

dominated by covert ideological arguments, and the policies these debates produce are generally ill-focused in terms of resolving well evidenced common performance and incentive problems. As a consequence, the political necessity is created for the next often-irrelevant 'redisorganisation' of structures, epitomised nicely in the behaviour of successive Dutch and British governments, both having adopted, abandoned and readopted reforms in the past 15 years. Such changes usually fail to define the causes of inefficiencies in performance and pay scant attention to how better systems of incentives can be implemented to remedy performance problems. A common international belief is that performance deficiencies can be remedied by spending more and changing delivery structures. The evidence base demonstrates the futility of such a belief.

Healthcare continues to be characterised by sometimes well-evidenced deficiencies that are not the primary focus of reformers. There are well-chronicled deficiencies in healthcare delivery, in particular well-evidenced, unexplained and unmanaged variations in clinical practice,[2,3] the failure to deliver evidence-based and appropriate healthcare to manage major killers such as hypertension, diabetes and asthma,[4] the prevalence of medical errors[5] which kill thousands of patients and create avoidable morbidity for many more, and the absence of health-related quality-of-life measures of the success of healthcare in improving the functioning of patients.[6]

Often these manifestations of inefficiency in the delivery of healthcare are either ignored or not central to the practices of policy makers. When they are explicitly discussed, they are often submerged in medical capture, e.g. Thatcher's

attempts to create a medical audit system in 1989 failed, and those of Blair risk the same fate. As Starr remarked 20 years ago, 'The dream of reason did not take power into account'.[7]

As it was then, so it is now. Apparent and real inefficiencies are regularly 'rediscovered' in healthcare funding and provision, and ambitious programmes of reform or social experimentation are engineered by well-meaning bureaucrats in the public and private sectors. Often these reformers readopt the policies of the past in the hope that the changes they create will, at worst, create diversion from criticism, and at best marginally improve the performance of the healthcare system. Often the diversion effects are short-lived and performance improvements transitory as powerful provider groups subvert reform and game the new system to their own advantage.

The international experience

The inclination of policy makers worldwide to 'make smoke' with ill-designed reforms that divert attention from the fundamental failures in the delivery of the public and private healthcare can be seen in the experiences of all countries in the chapters that follow. However, the three initial chapters address issues of common interest.

The ideological nature of the policy discourse in health and healthcare is shrewdly examined by Alan Williams. This discourse, both ubiquitous and covert, succeeds in diverting much intellectual and research effort into unproductive cul-de-sacs, but its dominance should not be ignored. Policy making in healthcare is not a value-free activity!

Cam Donaldson, Karen Gerard and Craig Mitton evaluate the lessons that can be learnt from the policy emphasis on purchasing, evident in the UK reform and managed care in the US. They provide a clear illustration of the poor quantity and quality of the evidence, often drowned by opinion, and argue that the task of developing efficient purchasing is certainly a longer-term enterprise – indeed, it may be 'mission impossible'.

Rudolf Klein studies the politics of the public–private mix for health in the UK, arguing for the uncertainty of the future nature of this mix. This uncertainty is, in part, a product of the Blair Government's rush for change, particularly in reducing waiting times. In order to meet their goal, they have provided public funding for marginal increases in private provision to create additional capacity and catalyse a hoped-for change in NHS efficiency. The owners of this capacity have an equity stake in future NHS funding, which may be of significant political importance.

The past 15 years of the UK NHS are examined in Chapter 5. The Thatcher reforms were bold in design and modest in effect, as politicians belatedly recognised that an efficient national market might lose them votes and destabilise the system. Initially, the reform was palliated by increased growth in expenditure and then by declining political interest in competition as an engine of creating dissonance and change. Initially, the Blair Government maintained relative funding stability and parsimony, and adopted an anti-market rhetoric. Subsequently, it has increased NHS funding at unparalleled rates and gradually shifted its stance on competition, adopting measures that are potentially more radical than those of Thatcher. Spending has been

accompanied by a plethora of structural reforms and target setting, which consumed much of the limited managerial capacity of the system. Consequently, many fundamental deficiencies in the NHS remain unresolved and, because of capacity restraints in the short term, much of the new funding has been absorbed by price increases (e.g. doctors' pay) with modest impact on the levels of NHS activity and the quality of care. Frustration with the pace of change has led to policies that have challenged NHS provision monopolies by enhancing the role of private providers.

Uwe Reinhardt provides a comprehensive and insightful analysis of the healthcare system, public and private, in the US. In 2003, over 15% of the US GDP was spent on healthcare and prices continue to rise at 8%. The US system is capable of providing some of the best healthcare in the world, but continues to exhibit profound inefficiency and inequity. While the Democrats continue to contemplate national health insurance, the Bush Administration has adopted 'patch-up' policies, such as an expensive system of pharmaceutical benefits for the elderly under Medicare, appearing more focused on vote acquisition than the efficient and equitable improvement of access and quality of care.

The affordability of public healthcare in the Canadian context is the issue addressed by Bob Evans – an issue pertinent to all healthcare systems with a large public sector. Evans demonstrates that although the wolves are at the door of the Canadian public system, it is remarkably robust, but in danger of fundamental damage by flirtation with private options. He concludes that the sustainability of Canadian Medicare is a moral issue, 'defining the mutual obligations of the members of the community'.

France's healthcare system is in severe crisis, as illustrated by Lise Rochaix and L Hartmann in Chapter 8. Although the hospital system is constrained by budget limits, the primary or ambulatory sector is replete with perverse incentives, e.g. free choice of doctors and open-ended pharmaceutical budgets. The previous socialist government introduced substantial tax finance on the UK NHS model and the current conservative regime is seeking to reduce demand with co-payments and restriction of benefits.

In Scandinavia (Denmark, Sweden, Norway and Finland), healthcare is publicly financed and generally publicly provided. Kjeld Pedersen's analysis shows that private insurance and provision are making only minor inroads in these fundamentally unchanging systems. He notes that in three of the four Scandinavian countries, the share of the GDP spent on health has been reduced, and that public dissatisfaction with the service has increased. One of the causes for complaint is the length of waiting times, which Scandinavia, in common with others, has managed with marginal increases in private provision while maintaining public systems.

Like the French system, German healthcare faces considerable cost pressures. The Dutch may lament having to wait four weeks for treatment and the British and the Danes have a target of six months, while the Germans have practically immediate access to treatment because of overprovision of hospital capacity and ambulatory care. The Schroeder Government, faced with costs of reunification, the need to reflate the economy and the cost of the public sector, finds itself in breach of European Union budget deficit limits. 2004 has seen the introduction of patient co-payments and

the Government is seeking to use incentives to improve efficiency, e.g. the progressive introduction of diagnostic related group tariffs to reduce the length of hospital stays. Such policies inevitably have an effect on employment and the voting intentions of a healthcare labour force in excess of three million are a powerful constraint on efficient adjustment.

In the Antipodes, Australia and New Zealand are reforming in opposite ways. The creation of a market mechanism and the purchaser-provider split in New Zealand produced both little evaluation and few observable benefits, despite the competing polemics of the National and Labour Parties. In 1999, the new Labour Government abandoned the purchaser-provider split and returned to a structure very similar to the one in place before the National Government market reforms. The principal policy challenges for government remain the existence of waiting times for elective hospital care and price barriers to utilisation in primary care, which the present Government plans to remove over time.

In contrast to New Zealand, the Australian government is determined to reduce the size of its public system – Medicare. Jane Hall and Elizabeth Savage show how a combination of subsidies and taxes has induced more Australians to acquire some level of private health insurance. They note that the opportunity cost of this policy ($A 2.5 billion) could have produced more healthcare if used in the public sector. These subsidies have affected the balance of public-private hospital funding and have been accompanied by price controls for general practitioners, which has led them to increase patient payments. Such radical attempts to privatise the universal Medicare system need careful evaluation. However, they

have also shifted attention from the problems of the public sector and this will be a nice challenge for the Australian government after the 2004 election.

The final chapters seek to bring together the lessons from these diverse but often similar experiences. The nature of healthcare markets worldwide is very similar. These market characteristics require sophisticated and careful regulation. The problems of the monopoly power of professions and commercial entities such as the pharmaceutical industry, the uneven or asymmetrical distribution of knowledge and power between consumers and providers, the absence of price barriers to consumption and equity goals make the pursuit of social goals such as efficiency and equity difficult and complex.

Despite the worldwide efforts of healthcare reformers, common problems remain, of which perhaps the most significant are variations in clinical practice and the absence of measures of success (i.e. improvements in the health of the population). Lack of reform in these areas is the product of a failure to define and rank policy goals and incentivise change based on scientific evidence rather than the opinion of 'experts'. While there may be some progress in addressing problems of efficiency common to public and private healthcare systems, there will continue to be disagreement over the distribution of the burden of funding healthcare and the rules determining patient access to care.

Choices in the financing and provision of healthcare are determined by ethics and ideology. Thankfully, the dominant ethic in most countries continues to be that of mutual obligation to ensure universal access to medical care

for our fellow citizens. This basic ethic of a civilised society continues to be challenged but, in healthcare as in other matters, united we stand, divided we fall!

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23

Shifting the deckchairs on the Titanic*

There is a risk that the good ship *NHS Titanic* will be in serious difficulties if its navigation is not improved.

After relatively balmy weather during the Blair–Brown epoch, the ship is running into choppy waters with icebergs hidden in the mists of policy-making incompetence.

The rhetoric of Whitehall village is 'evidence-based policy-making' but in practice policies appear to be based on the 're-disorganization' of healthcare structures. Inherent in this is an innate but flawed belief that altering the structures of healthcare delivery will lead to improved processes of care for patients which in turn will improve their health outcomes.

Sadly, the history of Labour and Conservative reforms in terms of changing healthcare structures appear to have generally failed to improve performance for patients and taxpayers.

For instance, the Labour government abolished GP fund holding in 1997 and then partially reinvented it in 2005 as 'practice-based commissioning'. They abolished hospital

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Trusts and then created Foundation Trusts. They abolished Health Authorities and replaced them with over 300 Primary Care Trusts, subsequently reduced to 152 in 2006. The costs of these upheavals in terms of redundancy payments, pension hand-outs and human misery among NHS staff were very high. The benefits to patients and taxpayers are noticeable by their absence. Healthcare reform is based on 'faith' or the often ideological and evidence-free ideas of passing Secretaries of State.

We now have a new set of political leaders who are focused on further radical reforms for which there is no evidence base. The current Secretary of State, Andrew Lansley, clearly indicated his intentions in a Conservative policy document in 2007. He intends to abolish the weak commissioners of healthcare, the 152 Primary Care Trusts created by Labour as the answer to ill-defined system problems. PCTs will be replaced by GP consortia, membership of which is to be compulsory. Each consortium will have budgets to buy healthcare for their patients. A new national NHS Board will direct NHS commissioning, supposedly independent of the Secretary of State.[1]

What evidence does Whitehall have that this will steer the *NHS Titanic* away from the icebergs that its right wing opponents would like it to strike? The answer is none. The NHS Board that was created during the early years of the Thatcher – Major NHS reforms was abandoned as ineffectual. Giving budgets to GPs was tried in the 1990s, taken up by a self-selected group of GPs and only evaluated on its abolition, which demonstrated that it appeared to have some small effects on elective admissions to hospital.

Such evidence is an inadequate basis for the whole system reform that is emerging. Clearly this view is shared in part by the Treasury who appear to be rightly anxious about GP accountability when they may be handed control of £70 billion of NHS expenditure, and by the Coalition Commission which has insisted that the White Paper is accompanied by 'consultation papers' which will seek to elucidate just how this untried and untested reform will be made to operate.[2,3]

The possibility remains of privatizing part of the remaining 'family crown jewels' as Harold Macmillan described the objects denationalized by Thatcher.

There are calls from the right to sell NHS hospitals and, for a government faced by a large deficit, this must be tempting. There are over 100 Foundation Trust hospitals which have been subjected to quite rigorous financial controls. These are to be transformed into social enterprise organizations and may be operated as private firms or on a cooperative partnership basis. This could potentially raise billions of pounds to ameliorate the deficit in public finance.

The NHS would survive as an organization that is tax funded and free at the point of delivery. The only change would be that the public–private mix of delivery would alter, perhaps radically. This would be ideologically challenging for the left and trade unions but attractive to the right.

But would this improve efficiency and equity? The limited empirical basis available shows little difference in the performance of public and private hospitals in mixed systems of provision. However, lack of evidence never stopped reform in the past!

Are the problems associated with the good ship *NHS Titanic* a result of its construction or the crew that are responsible for its day-to-day operation? Those in the engine room are working hard to keep the ship afloat, but have given perhaps insufficient attention to steering. This healthcare 'vessel' exhibits problems very similar to public and private healthcare systems worldwide, e.g. reluctance to translate evidence of cost-effectiveness into clinical practice, variations in the delivery of care to patients and poor measurement of 'success', i.e. does healthcare make patients better than they otherwise would be?

To improve the safety of the *NHS Titanic* and to ensure it avoids ideological icebergs in its path, its staff need to improve their performance by benchmarking practices, auditing 'outliers' in terms of low activity, higher costs and poorer outcomes and ensuring that all practitioners, particularly doctors and nurses, are transparent in terms of their performance and accountable. The efficient governance of the NHS labour force, preferably conducted by the professions themselves, is noticeable by its absence. Investment in standard setting and enforcement with demonstrably efficient incentive systems, non-financial and financial, would be a better investment in securing the NHS than yet another un-evidenced re-disorganization of its structure. Sadly, this is unlikely to happen as when Whitehall policymakers claim their work is evidence-based, it is usually faith-based!

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24

Alternative systems of health care provision: an essay on motes and beams*

Editors' Commentary

Written by three of the most influential health economists of the 20th century, this work provides an explicit framework and set of perspectives for thinking about and critiquing alternative health care systems. Tony Culyer, Alan Maynard and Alan Williams worked together at the University of York for nearly four decades, and are often considered to be the "founding fathers" of health economics in the UK.

> **'And why beholdest thou the mote in thy brother's eye but considerest not the beam that is in thine own eye?'**
>
> *Matthew 7:3*

There are difficulties in both principle and practice in critically evaluating different ways of providing health care. It is worth reflecting on these difficulties before beginning the task.

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The problems of *principle* concern the nature of the critique that is to be attempted. Suppose there are two significantly different ways of organizing the delivery of health care, which we will call system X and system Y. Suppose further that system X is designed faithfully to reflect one ideology (viewpoint A) and system Y another ideology (viewpoint B). One possibility would be to appraise system X with reference to viewpoint A, and Y with reference to B, and this method would be appropriate if we were trying to answer the question: How efficient is each system according to its own pretensions?

A second kind of critique would take each system in turn and appraise it with reference to one particular viewpoint. In such a comparison, it would be a devastating criticism of system X to show that it was worse than system Y when judged from viewpoint A, but it would not make much impact if one merely showed that X was worse than Y from viewpoint B, because the proponents of viewpoint A would regard that as irrelevant. The foregoing statements obviously also apply, mutatis mutandis, where the roles are reversed. This cross-cultural critique is therefore relevant if one wants to answer the question: Do "we" want "their" system here?

Yet a third kind of critique might be purely ideological and consist of an argument about the moral superiority of viewpoint A over viewpoint B or vice versa. This method would be relevant if one were trying to convince one's fellow citizens that there is a better way of looking at health care systems, and if one were successful, this argument might change their views about the relative merits of systems X and Y by changing the criteria by which the systems are judged.

The main concern of this chapter is the first kind of critique–that is, we wish to examine each system according to its lights, to highlight the differences (and note the similarities) between them. We will also comment on how these differences are perceived from the opposite viewpoint, and in so doing take a limited excursion into the second type of critique. The *practical* problems in making such comparisons concern two main features: the context within which the system works and the availability of relevant data on its performance.

The dominant contextual variable is the level of real income in the society, since it has been shown to play a dominant role in determining both the level of health in the community and the total amount of resources devoted to health care. Its effect on the level of health seems to work through levels of nutrition, sanitation, housing, education, and so forth. The evidence that health care itself is effective at the margin in improving either length or quality of life in most advanced countries is, to put it mildly, not strong.[1] But this evidence is by no means conclusive, because we lack comprehensive data on a comparable basis between systems, and even within a system one must generalize from rather scanty general surveys and rather piecemeal case studies.[2] This lack of information inevitably leads to differences in judgment about the significance of one item of evidence compared with another. Such differences seem to arise out of the questionable status of health care as a "luxury" item.[3]

We are now faced with a dilemma. If we pursue the discussion with prototypes of systems and idealized viewpoints, we run the risk of formulating a vacuous essay in stylized history. If we open the discussion with a specific case study, we run

the risk of being sidetracked in arguments about particular features of the selected cases to the detriment of the main theme. We have struck an uneasy compromise between these two extremes in that we have associated the United Kingdom and the National Health Service (NHS) explicitly with viewpoint B and system Y, but we have not associated viewpoint A and system X with any particular country. In thinking about the issues posed, however, we have had in mind countries such as the United States and West Germany. This procedure has caused us problems because of the disparities in wealth between the countries "in our minds' eye." In a more comprehensive analysis it might be better to adopt a comparative scheme more like the following one:

	System X	**System Y**
Rich	United States, West Germany	Scandinavia
Not-so-rich	France	United Kingdom

Since our special knowledge is with respect to the United Kingdom, however, and the conference for which this paper was written was largely about the United States, this tactical decision seems justified on this occasion. Our readers will, in the main, be able to apply their knowledge of the institutional features (especially for the United States) that we lack and thereby extend the comparisons that we make.

The chapter will first summarize viewpoints A and B, following Donabedian closely.4 The prototypical systems X and Y will then be sketched out and some immediately obvious implications identified. Each will be scrutinized according to its own lights, and then according to the opposing ideology. Finally we shall speculate about the future of each system.

Idealized Viewpoints

It is possible to distinguish sharply between two rival ethical bases, on each of which a system of health care can be constructed and justified. The first considers access to health care to be essentially similar to access to all the other good things in society (food, shelter, leisure pursuits); that is, it is part of society's reward system. The second regards access to health care as a citizen's right, like access to the ballot box or to the courts of justice, which should not depend in any way on an individual's income and wealth. Economists' models of the efficiency of alternative systems have sometimes bridged these two views, especially when externalities have been introduced.[5] We shall not, however, develop that line of argument here. These two positions have been epitomized by Donabedian as viewpoint A and viewpoint B.[6] They are, he argues, each typically associated with a complex of other attitudes toward health care, as illustrated in table 1. These syndromes should be kept in mind when viewpoints A and B are referred to later in the text.

Prototypical Systems

System X has as its guiding principle consumer sovereignty in a decentralized market, in which access to health care is selective according to willingness and the ability to pay. It seeks to achieve this sovereignty by private insurance; it allows insured services to be available partially free at time of consumption; it allows private ownership of the means of production and has minimal state control over budgets and resource distribution; and it allows the rewards of suppliers to be determined in the market.

System Y has as its guiding principle the improvement of health for the population at large; it allows selective access

according to the effectiveness of health care in improving health ("need"). It seeks to improve the health of the population at large through a tax-financed system free at the point of service. It allows public ownership of the means of production subject to central control of budgets; it allows some physical direction of resources; and it allows the use of countervailing monopsony power to influence the rewards of suppliers.

Both systems (in principle) offer choice of practitioner to patients, and clinical freedom of practitioners in the treatment of patients. Both systems ration access, but the excluded patients have predictably different characteristics and manifest themselves in different ways. Poor people and people in areas where it is not very rewarding to supply health care will be the excluded population in system X, except to the extent that an enclave of system Y is introduced alongside to take care of needy groups. The excluded population under system Y will be those for whom medical care is not cost effective in health terms, and they will show themselves in waiting lists (if they are close to the margin established by the priority system), unless system Y allows an enclave of system X alongside to allow those with the requisite willingness and ability to pay to be taken care of outside the main system. Both systems incorporate an agency relationship between doctors and patients, and wherever market mechanisms impinge upon the workings of either system, they are invariably imperfect.[7]

Table 1: ATTITUDES TYPICALLY ASSOCIATED WITH VIEWPOINTS A AND B

	Viewpoint A	*Viewpoint B*
Personal responsibility	Personal responsibility for achievement is very important, and this is weakened if people are offered unearned rewards. Moreover, such unearned rewards weaken the motive force that assures economic well-being, and in so doing they also undermine moral well-being, because of the intimate connection between moral well-being and the personal effort to achieve.	Personal incentives to achieve are desirable, but economic failure is not equated with moral depravity or social worthlessness.
Social concern	Social Darwinism dictates a seemingly cruel indifference to the fate of those who cannot make the grade. A less extreme position is that charity, expressed and effected preferably under private auspices, is the proper vehicle, but it needs to be exercised under carefully prescribed conditions, for example, such that the potential recipient must first mobilize all his own resources and, when helped, must not be in as favourable a position as those who are self-supporting (the principle of "lesser eligibility").	Private charitable action is not rejected but is seen as potentially dangerous morally (because it is often demeaning to the recipient and corrupting to the donor) and usually inequitable. It seems preferable to create social mechanisms that create and sustain self-sufficiency and that are accessible according to precise rules concerning entitlement that are applied equitably and explicitly sanctioned by society at large.

Freedom	Freedom is to be sought as a supreme good in itself. Compulsion attenuates both personal responsibility and individualistic and voluntary expressions of social concern. Centralized health planning and a large governmental role in health care financing are seen as an unwarranted abridgement of the freedom of clients as well as of health professionals, and private medicine is thereby viewed as a bulwark against totalitarianism.	Freedom is seen as the presence of real opportunities of choice, and although economic constraints are less openly coercive than political constraints, they are nonetheless real, and often the effective limits on choice. Freedom is not indivisible but may be sacrificed in one respect in order to obtain greater freedom in some other. Government is not an external threat to individuals in the society but is the means by which individuals achieve greater scope for action (that is, greater real freedom).
Equality	Equality before the law is the key concept, with clear precedence being given to freedom over equality wherever the two conflict.	Since the only moral justification for using personal achievement as the basis for distributing rewards is that everyone has equal opportunities for such achievement, then the main emphasis is on equality of opportunity, and where this cannot be assured, the moral worth of achievement is thereby undermined. Equality is seen as an extension to the many of the freedom actually enjoyed by only the few.

Performance: System X

If system X is examined from viewpoint A, the first issue on which to focus is whether the insurance mechanism achieves the level and pattern of care that a well-informed free market would have generated.

The coverage of system X is characterized by duality: on one hand, a private health care sector made up of competing nonprofit insurers and nonprofit medical service institutions; on the other, a government health care sector offering subsidized care to especially deserving or needy groups that in practice are likely to include the poor, the old, the chronically sick, and war veterans. The degree of insurance coverage, and hence the effective demand for health care, depends on income, attitude toward risk, and the pooling of risk. It also depends on whether premiums are tax offsets and whether they are partly paid by employers. There is likely to be general overinsurance, as judged from viewpoint A,[8] as well as specific instances of underinsurance.[9]

The coverage of the government sector under system X will be imperfect because the state programs are not coordinated. That is, not all hardship groups will be covered. The typical hardship group is the poor. Generally a large proportion, at least 60 percent, of the poor are over sixty or under twenty years old. Furthermore, it is unlikely that such groups will consist predominantly of minority ethnic groups; they will generally be white, and a large percentage will be rural inhabitants. All epidemiological studies show these classes of people to be most in need of health care.

Typically, government intervention in system X will be aimed at assisting these groups but will be piecemeal and

will adopt some of the characteristics of private insurance. A health care plan for the aged who are in receipt of social security, for instance, would consist of two parts. The first part would provide relatively comprehensive hospital insurance, but would be subject to quite substantial deductible and coinsurance provisions. The second part of this program would consist of voluntary supplementary insurance for physicians' services, outpatient care, and supplies, financed by premiums matched by government contributions and also incorporating coinsurance and deductibles.

Another government program is likely to be directed at the nonaged poor and would be linked to eligibility for welfare. Given the decentralization and selectivity objectives lying behind system X, the associated income maintenance (social security) system will probably be complex and incomplete in its coverage. Thus provision of health care in this sector (the nonaged poor) will also be incomplete and characterized by complex sets of regulations about eligibility. Furthermore, eligibility and coverage will be made more complex by the fact that the benefits will be provided by state governments, but federal authorities will seek to equalize them.

Such programs will have predictable outcomes. Because many people are tied to the welfare program, they will not receive benefits although they are poor. If eligibility is restricted to the aged, the blind, the disabled, and one-parent families, for instance, then significant proportions of the rural and urban poor will get no benefits. Those in receipt of care will find large geographical differences in facilities. Payments for doctors' services will be higher in metropolitan areas than in nonmetropolitan areas, and higher in the high-income areas than in the low-income areas. Considerable

interjurisdictional benefit differences will also exist, and there will be large differences in the services received by the different races: Average benefits for white recipients, for example, will be higher than for nonwhites.

Those in receipt of publicly financed health care and those eligible for privately financed health care will face deductibles and coinsurance. Most of the evidence from countries that, like the United States, have a system X pattern indicates that the effect of such price barriers will be that demand patterns will be changed; the less affluent, who are often those with the poorest health status, will reduce their demand for care the most. Prices will reduce demand for those who are ill and in need of care, as the California experiments have shown. With members of the population having unequal effective demand and facing price barriers, care will go to the more affluent (and the relatively more healthy) because of demand patterns.

To the extent that demands are reduced by deductibles and coinsurance, the patients' agents (doctors) may be able to compensate for the reduced demands for their services by changing their diagnoses and generating extra demand for their services. These effects will be more pronounced in affluent areas and will ensure that cost containment is difficult to achieve in system X. Relatively high health care spending will be reflected in higher physician incomes, higher-technology medicine, and a higher rate of intervention than is expected in the NHS. In Cochrane's epidemiological survey of seven countries, therefore, it is not surprising to find that the United States ranked first in terms of its health spending as a proportion of gross national product (GNP) (whereas England and Wales ranked seventh), while ranking

sixth or seventh in perinatal, infant, and mature male and female mortality rates (compared with England and Wales, which ranked third or fourth on average). Similarly, the rate of introduction of new (and untested for effectiveness on clinical outcomes) technologies like the Computed Tomography Scanner is immeasurably faster in the United States than in the United Kingdom, where the technologies are centralized in regional neurological specialties.[10] It is well established from many cross-national epidemiological studies that the rate of surgical intervention is two or three times higher in the United States than in the United Kingdom.[11]

It therefore seems likely that the selective approach of system X will fail to provide an effectively guaranteed floor of health care provision, and that the inequalities in health care consumption and health status will be more marked in system X than in system Y. The price of tying health care to the reward system is great inequality in provision, access, consumption, and health status. Such outcomes can be seen in several X-type systems. [12]

The decentralized decision-making framework of system X is reflected in a multiplicity of private insurers, although usually there is a marked propensity for concentration in ownership, with the market being dominated by a few insurance carriers. The public sector is made up of overlapping agencies providing care for the poor, the aged, and special groups such as veterans, which make for a lack of integration in the delivery of health care and related services,

Although doctors will be prepared to transfer patients among themselves, they will be wary of referring patients out of the immediate health care system because to do so would

result in a loss of fees. In some X-type health care systems (for example, West Germany) payment of a fee per item of service has led to the development of extensive diagnostic equipment in doctors' offices, where it is underused, and a lack of development in the numbers of hospital outpatients, because the primary-care doctors do not want to lose the income from the diagnostic fees that they could claim for patients, even though some standardization of provision would have been in the patients' interest.

The decentralization of health care ensures that coordination between financing and supplying agencies is limited and that doctor monopoly power is not confronted with a monopsony. Similarly, other provider agencies, including the pharmaceutical industry, are not countervailed by any concentrations of buying power. Such agencies are likely to be strong supporters of system X (especially vis-à-vis system Y).

The lack of coordination in organization and the unbalanced use of resources within system X also characterize its dealings with other social service agencies. Their federal-state nature makes coordination difficult and integration with the health care system well nigh impossible.

Thus system X provides an expensive choice for the majority having insurance, but a limited choice for the poor minority, and for decentralized agencies that do not cooperate extensively. The problems of this sector, expenditure inflation, and the failure to provide "minimum" health care for the whole population, tend to precipitate increased government intervention and the extension of government planning, that is, the grafting of system Y elements onto system X.

Performance: System Y

Since the overall objective of system Y is to improve the health of the community, it seems reasonable to start by asking whether it is more efficient in its effort than system X. Here we immediately run into considerable problems concerning the definition of health, but if we take three common indicators (perinatal mortality, life expectancy at age one, and maternal mortality) and if we compare these for a range of advanced economies, we obtain the data presented in table 2.

In commenting on this table the Royal Commission on the NHS observes:

> …the general trend is for countries with a high per capita expenditure on health to have a relatively low perinatal mortality rate, though Japan and the USA diverge from this pattern….in 1974 West Germany and the USA had much larger national incomes and per capita health expenditure than England and Wales but were performing worse in terms of perinatal mortality, and no better on life expectancy….[13]

Table 2: HEALTH SERVICE RESOURCES AND RESULTS: INTERNATIONAL COMPARISONS, 1974 OR NEAR DATE

Country	Per Capita Total Expenditure on Health (US$)[a]	Percent Trend GDP[b]	Doctors (per 10,000, 1974)	Nurses (per 10,000, 1974)	Life Expectancy[c]		Perinatal Mortality (per 1,000 live births)	Maternal Mortality (per 100,000 births)
					M	F		
Australia	308	6.5	13.9	54.1	68.5	75.4	22.4	11.3
Canada	408	6.8	16.6	57.8	69.7	77.0	17.7	10.8
Finland	265	5.8	13.3	46.0	66.8	75.5	17.1	10.6
France	352	6.9	13.9	23.7	69.5	77.1	18.8	24.0
Italy	191	6.0	19.9	7.8	70.0	76.0	29.6	42.4
Japan	166	4.0	11.6	16.1	70.8	76.0	18.0	38.3
Netherlands	312	7.3	14.9	22.5	71.2	76.9	16.4	10.3
Norway	270	5.6	16.5	46.4	71.4	77.7	16.8	3.3
Sweden	416	7.3	16.2	58.6	72.0	77.4	14.1	2.7
United States	491	7.4	16.5	40.4	68.0	75.6	24.8	15.2
West Germany	336	6.7	19.4	27.6	68.6	74.9	23.2	45.9
England and Wales	} 212	} 5.2	13.1	33.7	69.5	75.6	21.3	13.0
Scotland			16.1	45.6	67.7	74.0	22.7	21.5
Northern Ireland			15.3	36.6	67.0	73.6	25.9	17.1

[a] The column is indicative rather than definitive: It has been derived by multiplying percentage of trend GDP (gross domestic product) spent on health care by actual GDP adjusted for purchasing power differences.

[b] Trend GDP is used to avoid the influence of cyclical business fluctuations on the level of output, which could distort the measured share of health expenditure in that output. See Organization for Economic Cooperation and Development (OECD), *Public Expenditure on Health*, 1977, p.9.

[c] At age one.

SOURCES: There are a number of caveats concerning the figures in this table. Details are given in the following sources: OECD, *Public Expenditure on Health*, 1977, table 1; R. Maxwell, *International Comparisons of Health Needs and Health Services* (London: McKinsey & Co., 1978); Irving B. Kravis, Alan W. Heston, and Robert Summers, "Real GDP per Capita for More Than One Hundred Countries," *Economic Journal* (June 1978), table 4; table 3.8 of the Report of the Royal Commission on the NHS, Cmnd. 7615, Her Majesty's Stationery Office, London, 1979.

Although much more sophisticated analysis is called for if one is to pinpoint the precise sources of these differences, it seems clear that in terms of cost effectiveness (where effectiveness relates to health) system Y is the best buy.

Viewpoint B also sets great store on equality of opportunity and the use of health care as a compensatory mechanism where the absence of such equality generates casualties in health terms.

At the level of formal entitlement, system Y offers universal access to a wide range of services, so in that respect there is no problem. But a more severe test of its performance is the extent to which those who would benefit most from health care are the ones who utilize it. In the United Kingdom this discussion has centered on two distinct but related issues, first, the unequal geographical dispersion of health and health care and, second, the social class gradient in health and health care utilization.

The early days of the NHS were characterized by the surprising degree to which medical discretion was given free play to dispose of available resources, while the availability of resources was for many years what had been inherited from the past. This complacency is, perhaps, less surprising when one realizes that systematic empirical epidemiology is still largely in its infancy. On the other hand, it is remarkable that the first study of the territorial distribution of resources occurred in 1970, twenty-two years after the inception of the NHS, and that it was a study sponsored by the British Medical Association and not an official one. [14]

At the aggregate level of resource allocation, only recently have resources been allocated in a way that is consistent with the achievement of the goal of universality. The ability of each district to provide services was, in part, determined by the stock of facilities (including personnel) they inherited in 1948, and in part by the extent of subsequent redistribution to reduce pre-1948 inequalities.[15] Resource flows–and capital flows in particular – have been affected by the requirements of economic stabilization policies and by the reluctance of the government to adopt policies of positive discrimination in favour of the relatively deprived areas (especially the English regions outside the London area).

There have been some direct controls on resource deployment by the central government, particularly in attempting to shift the regional distribution of resources. Thus because of policies such as "negative direction" some geographical areas have been declared to be provided adequately with general practitioners and new practices are not allowed. Central government has also controlled the creation of new hospital specialist (consultant) posts to shift resources into particular specialties and geographical areas, as perceived needs suggest is desirable.

Until 1970, budgets were allocated on the basis of a crude incremental formula: what was received last year + x percent for inflation and growth + y percent to rectify any "scandals" revealed by the media. Since 1970 a series of specific resource allocation formulas have evolved, the objective of which is to reduce the disparities in the allocation of budgets within each of the four parts of the United Kingdom. These policies were initiated by a Conservative government, elaborated by a Labour government, and are being retained by the present

Conservative government. If prosecuted with vigor, they will reduce inequalities in resource endowments among the four parts of the United Kingdom and among the English regions (especially inequalities between London and the rest of the country).

The present formulas, which allocate resources on the basis of population weighted, inter alia, by mortality (as a proxy for morbidity), are applied only within England, Scotland, and Wales, and so do not tackle the problem of differences among the component parts of Britain. If the Resource Allocation Working Party (RAWP) formula[16] were applied to the whole country as if it were a single unit, the health care budgets of Scotland and Ulster would be reduced by 14.9 and 13.7 percent, respectively.[17]

As for the social class gradient, it seems that the participants in the political debate in the 1940s thought that the removal of the price barrier to consumption would eradicate the major obstacle to equal access.[18] This attitude proved naive. Whether the consequence of the abolition of the so-called price-barrier is greater or lesser, "inequality" depends on the rationing system that becomes effective. At the doctor-patient level, the doctor, as the patient's agent, is in a position to ration access using nonpecuniary criteria such as clinical condition, age, sex, color, religion, socioeconomic class, actual or potential nuisance values, and so on. In other words, the effective demand for health care depends partly on the decisions of patients to initiate a spell of care and partly on professional judgments by the doctor about the marginal product of health care in terms of its effect on the health status of patients. Demand for care must also be partly related to what generates job satisfaction for the physician. Thus it is

related both to the supplier's concept of productivity and to the patient's view of expected marginal benefit. The doctor-patient relationship is not distorted by artificial incentives to supply unproductive, but remunerative, services, although there are, in the absence of close monitoring mechanisms, greater incentives under the NHS to maximize a "quiet life" (for example, to refer patients unnecessarily to specialists in the hospitals). While these effects at the level of the general practitioner do not adversely affect the universality principle, it is clear that progress has not gone as far as might have been expected in the direction of devising incentive structures to bring actual practice more closely in line with what is believed to be "best practice." On the other hand, the financial anxieties that would otherwise accompany ill-health in the form of uncertainty as to what one's insurance actually covered or concern that one might not, without considerable sacrifice, be able to afford copayments, are completely removed.

There is still a long way to go, however, if the objective is to eliminate differences in health (and health care utilization) between social classes.[19] It is increasingly argued that this task may require not so much improved health services for the poor, as coordinated improvement in a whole package of services, of which health care would be only one. From the beginning of the NHS it has been recognized that although health care (an input) and good health (an output) are linked, the nature of the health production function is more comprehensive than this. Good health[20] or healthy days in Grossman's terms[21] is the flow of services from a stock of health capital whose level is influenced by inputs such as income, education, housing, social security programs, and family time, as well as health care. Some of these other determining

variables are the responsibility of other bodies, mainly local authorities and the central government. Beveridge analyzed the problems of the welfare state in terms of the eradication of the five "giants" of Want, Disease, Ignorance, Squalor, and Idleness, emphasizing the interaction of these facets of social policy and the consequent need for integration of the policies to deal with them.[22] Under the NHS, government health departments sought to integrate policy in a variety of areas.

The NHS Act nationalized the hospital system and brought together the previously separate voluntary (nonprofit) sector with the local government sector. Problems of coordination with local government social services and other government agencies remain, however. In 1976 funds were made available for the NHS to finance local government projects that would enable the NHS to discharge patients more rapidly and to use resources more efficiently.

These problems of integration are compounded by the nature of resource allocation at the microlevel in the NHS. The principal decision maker is the doctor, and he typically has neither the training, the inclination, nor the incentives to practice efficient (that is, cost-effective) medicine. The NHS does not provide sufficient information about the costs and benefits of alternative therapies and medical practice. It, and the universities, trains doctors to act decisively rather than to appraise scientifically the attributes of alternative procedures. Even if the efficient NHS doctor does evaluate his practice, the results of his work are not likely to be applied by his colleagues because they have few incentives to minimize costs and maximize output. The NHS budgeting system generates little useful information routinely[23] and often

presents perverse incentives to decision makers.[24] The NHS structure can be best interpreted as *enabling:* It *removes* some of the main incentives for ineffective care and opens the way for the unprejudiced application of professional judgements. It does not, as yet, provide incentives aimed directly at the production of the most cost-effective care.

There are signs that these problems are being recognized by the profession and that the NHS is becoming more aware of the need to evaluate and the need to provide more incentives (monetary and non-monetary) for doctors to be efficient in their resource allocation. The tight overall financial control (through predetermined cash limits) is reinforcing the necessity to evaluate: In a no-growth world new developments can be adopted only if old programs are dropped. These pressures are sharpening the debate about choices and are forcing doctors to take more seriously economic appraisals of their activities.

The existence of private practice also introduces distortions. In particular, the principal nonprice rationing mechanism for non-urgent hospital admission is waiting time.[25] Patients waiting for admission are almost entirely surgical cases whose conditions – for example, squints, hernias, varicose veins, hemorrhoids, and hip replacements – offer no threat to life. Elective surgery cases admitted from the waiting list constituted about a quarter of all admissions in 1977 (the rest being direct admissions or transfers from other hospitals), and they were on the waiting list an average of sixteen weeks. Control of the waiting lists by consultants who also have private practice is a means of diverting NHS patients into private practice and, for the unscrupulous, offers little incentive to use NHS beds as efficiently as possible.

The existence of private practice extends, of course, the scope of choice for both doctor and patient and enables patients to avoid waiting. Although private medicine in the United Kingdom is not comprehensive (for example, cervical smears are not routinely taken in cases of termination of pregnancy in the private sector, with the result that some cases have had catastrophic consequences among this high-risk class of women), it typically offers better hospital hotel-type facilities. It also provides patients with a choice they do *not* have under the NHS, that is, the choice of surgeon who performs the operation. Under the NHS one chooses (in consultation with the general practitioner) one's consultant, but that choice assures only that a member of *his team* will perform the operation. In the private hospital sector, since only consultants may practice privately, one can be sure that the senior man of the team himself will perform the operation. Epidemiological evidence suggests, however, that this situation brings no clinical advantage and may, for the routine operations that form the stock-in-trade of private surgery, even be a disadvantage, since the senior man will tend to take only the more complex cases and be less practiced at routine ones. Thus in the United Kingdom the private sector represents a grafting of a system X offshoot onto a predominantly Y-type system.

Although neither the Beveridge report nor the coalition government's White Paper advocated the nationalization of the hospital system, the medical profession and other interest groups accepted it with little resistance.[26] Experience with the Emergency Medical Service during World War II had taught physicians that government intervention and money did not necessarily restrict their freedom to practice.

The Department of Health has, of course, been more active as the chief representative of the NHS against monopolistic suppliers. Government power has been used to influence the quality and prices of pharmaceutical products. The 1968 Medicines Act and the Medicines Commission, which regulate the quality of drugs, are similar to the Food and Drug Administration of the United States. The prices of pharmaceutical products have been regulated by the government of the United Kingdom since 1957. The current pharmaceutical price regulation scheme is a product of the last Labour government. Cooper has argued that price regulation has reduced the prices of pharmaceutical products in the United Kingdom, but even if his conclusions are correct, the industry continues to prosper.[27] Its important contribution to exports from the United Kingdom undoubtedly gives it considerable political clout.

Hospital doctors are salaried, and general practitioners are paid largely on a capitation basis. Additional remuneration depends on the age of the doctor (seniority payments), and his participation in the provision of certain services such as vaccinations, family planning, and out-of-hour home visits in order to encourage comprehensive health care. Salary negotiations take place through a review body made up of the "great and the good," who recommend pay awards relative to changes in the remuneration of other professions. While denying NHS doctors the opportunity to acquire substantial wealth, this system maintains the medical profession in a high place on the scale of remuneration of professional people.

The arguments over the terms and conditions of employment are intense, but the principles on which they are based retain the ideas of 1948: If he so wishes, the physician can elect

to be a wholly private, a wholly public, or a private-and-public worker. Very few are wholly private, as the system not only provides modern and effective care but does so while ensuring that the professionals remain in high social standing and are paid at rates not inferior to those of their professional peers in other walks of life.

Doctors' salaries are low by European standards,[28] as are most salaries of professionals in the United Kingdom, and a familiar and fallacious conclusion to draw is that emigration is high.[29] Although the output of medical schools in the United Kingdom has risen from around 2,800 in 1968 to about 4,000 in 1979, the outflow of doctors has remained fairly constant at around 300 per year (less than the annual output of the medical schools). Certainly if the fluctuations in the emigration rate are taken as indicators of doctors' morale, they imply no impending doom for the NHS. Surveys conducted to ascertain more about the morale of doctors in the United Kingdom indicate that the morale of the profession is high and that the level of professional complaints about the NHS is small: 86 percent of NHS doctors would choose a career in medicine in the United Kingdom if they lived their lives again. [30]

Although it is difficult to evaluate in a scientific fashion whether choice has been exercised by those patients and doctors wishing to do so, the available evidence suggests that both parties are, in general, content with the NHS. Compared with assertions derived from the casual analysis of some NHS critics, the practice of the NHS is not far removed from its principles in respect of freedom of choice. Whether systems of control devised to serve better the other objectives of the NHS would seriously impede clinical freedom remains to be seen.

Table 3: COMPARATIVE FEATURES OF TWO SYSTEMS OF HEALTH CARE

System X	*System Y*
Seeks to satisfy consumers in a market situation in which access to health care is part of the reward system of the society, hence determined by willingness and ability to pay.	Seeks to promote the general level of health in a community in which access to health care is the right of every citizen who stands to benefit therefrom.
Consumers insure and gain access to insured services (when required) at a reduced price at the point of consumption.	Consumers pay through the general tax system and pay nothing (or a nominal fee) at the point of consumption.
Private ownership of the means of production mainly by non-profit-making organizations.	Public ownership of the means of production.
Minimal governmental control over budgets and resource distribution.	Central control over budgets and some physical direction of resources.
Inputs to the service rewarded according to market forces.	Use of countervailing monopsony power to moderate the impact of other market forces.

In both cases we noted the incursion of "alien" viewpoints (hardly surprising in pluralistic democratic systems) that have led to the grafting of small offshoots of the other system onto the rootstock of the indigenous system. This phenomenon leads us to ask whether the two systems will hybridize and become indistinguishable through convergence, or does the one have greater (Darwinian) power to survive sociopolitical changes in the environment.

Notwithstanding the difficulty of predicting ideological changes, at least one argument suggests that viewpoint B is more likely to gain ground in democratic countries over

viewpoint A; that is the crude evolutionary argument that the countries now having Y-type health care systems did previously have X-type systems and chose to get rid of them, whereas we know of only one country (Australia) that has moved in the other direction. (This argument might be especially attractive to economists schooled in "revealed preference" theory.)

A different approach, which comes closer to being a direct ideological challenge, would be to ask whether one is more comfortable with a system in which the discontented minority are the poor and needy, or one in which the discontented minority are the more well-to-do members of society. Ultimately, of course, you just have to stand up and be counted. We wish to register as subscribing to viewpoint B, and our quotation from St. Matthew is to be read in that light.

Table 4: ACHIEVEMENTS OF TWO SYSTEMS OF HEALTH CARE

System X	System Y
Consumer sovereignty: Good for some, but vulnerable to exploitation in the contact of the agency relationship.	Health status: Good in relation to resources used.
Selectivity: Patchwork a bit threadbare in places. Integration and coordination: Not efficacious owing to very imperfect markets.	Universality: Late developer, could do better. Health status: Working at it.

Our prime concern, then, is to make system Y in the United Kingdom perform better according to its own lights. If, in the process, we can be of practical assistance to holders of viewpoint B elsewhere by offering a working model of system Y that is more attractive to them than any working model of system X, so much the better. Whether such a system will ever be attractive to holders of viewpoint A, or will convert them to viewpoint B, is another matter.

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29. See, for example, C. M. Lindsay, *National Health Issues: The British Experience* (New York: Hoffmann-La Roche, 1980).

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25

Performance incentives in general practice*

Editors' Commentary

Maynard could be the 'Mozart of health economists'; this short paper is bursting with original ideas, many of which presaged developments over the next decades. Perhaps the most notable is the idea of "GP fundholding" – the holding of budgets by primary care physicians to purchase a package of care on behalf of their patients, including hospital and community care and pharmaceuticals. Primary care has always been at the heart of the UK NHS, but for much of the time there was a poorly specified expectation of what services GPs should be providing, as well as limited information to help patients choose their GP. Maynard argues in this paper for: clearer specification of the basic care package, better information for patients, greater experimentation using pilots of different approaches to running and incentivising GP practices, changes in the doctors contracts, the requirement for all drugs and practices to have proven worth and value

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for money before being introduced, and community pharmacy to improve GP prescribing as well as for GP fundholding. Each of these ideas has led to a policy implementation, many of which were subsequently shown by researchers to generate benefits.

'It is not hard for one to do a bit of a good. What is hard is to do good all one's life and never do anything bad, to act consistently in the interests of the broad masses, the young people and the revolution, and to engage in arduous struggle for decades on end. That is the hardest thing of all!' – Mao Tse-Tung

After the reforms in the 1960s the British system of primary care settled back into a torpidity from which it has only recently begun to stir. The well-intentioned reforms of two decades ago and the changes which have taken place in the organisation and funding of the primary care system since have had effects which have not been evaluated systematically. Primary care is an expensive 'black box', consuming about 24 per cent of the NHS budget in 1984-85, which some doctors assert, in the absence of any evidence, is 'cost effective'[1] and a 'success'.[2] However, some influential sections of the medical profession are now recognising that fundamental changes in attitudes, evaluation of practice and behaviour are needed urgently.[3] Continuous revolution with systematic evaluation of change is essential if the supply of primary care services is to meet the changing and complex demands for care in an ageing society. As Mao indicated this process is arduous but unavoidable if policy goals are to be met at least cost.

What is the nature of the problem?

Before it is possible to discuss performance incentives it is necessary to identify the defects of the existing system of primary care. However, the indentification of 'defects', presupposes the existence of some ideal system of primary health care. Some characteristics of such a system will be outlined after an exploration of some of the characteristics of the existing system.

(i) What can the consumer get?

The National Health Service (General Medical and Pharmaceutical Services) Regulations of 1974 state that the general practitioner is 'to render to their patients all necessary and appropriate medical services of a type usually provided by general medical practitioners'.

This general definition of the GP's contractual obligations has not been supplemented with any agreed definition of what are 'necessary and appropriate services of a type usually provided'. Individual GPs have interpreted their remit in a manner consistent with their interests, influenced at the margin by the payment system. Thus some GPs provide hypertension clinics and care for diabetes but not all do so. Immunisations and vaccinations services are available but the extent to which practitioners provide these and other services seems to vary within and between Family Practitioner Committee (FPC) areas. Fundamental procedures like the creation of age-sex registers for practices often tend to be absent with perhaps only 30 per cent of GPs having this basic practice management tool.

Whilst the consumer can switch between GPs she finds it difficult to do so. The migrant patient within or from outside

an area finds it difficult to get meaningful and systematic information about the characteristics of alternative GPs. Advertising is 'unethical' and local Family Practitioner Committees, who employ the doctors, typically provide little information to the public and monitor practice in a haphazard and superficial manner.

Typically the patient depends on luck in choosing her GP. She can search the market and interview receptionists and GPs but this process is time-consuming and can be counter-productive if the GP intelligence network identifies a potential `trouble-maker'. Thus rather than the GP reflecting the tastes and preferences of the patient, practice times, visiting activities and service provision reflect the tastes and preferences of the GP. The professional arranges the patients' life rather than the GP providing those services required at a time and place convenient to the consumer, and the patient knowing of no alternative accepts the package of care offered with gratitude!

(ii) What can the producer get?

In 1984 there were 29,137 unrestricted principals at work in general practice in the United Kingdom. The majority of these (23,640) work in England and the stock is growing at nearly 2 per cent per year. The net target income for such doctors is £23,440 for 1985-86 and typically the total gross income (from all services) can be in excess of £30,000 by the age of 30. General practice is seen as an attractive career option for medical graduates as it offers high incomes sooner than a hospital career and permits practitioners to work in an environment untrammelled by cash limits and relatively unevaluated by the local employers (FPCs).

During the last two decades, not only has practice income grown, there has also been an expansion in the scope for the delegation of tasks. Thus the growth of health centres and the increased levels of 'latching on' district nurses and health visitors has offered the possibility of improved quantity and quality of service. Whether such an outcome has been achieved is unknown. Policies have changed but there has been no systematic evaluation of their effects. What is meant by a collaborative primary health care team? How does it work? How does it effect the division of tasks between actors? How much do alternative combinations of actors cost and what are the effects of these alternatives on service delivery? The literature offers some subjective evaluations of differing experiences but there have been few attempts to randomise patients between experimental and control groups (randomised control trials) and analyse the costs and benefits of alternatives.

At the same time as the number of 'collaborators' with GPs has increased, average list sizes have declined to about 2,100 patients per GP in England. There is BMA pressure to reduce the list size to about 1,700 and the manpower forecasts appear to accept these in an uncritical manner. Yet criticism there should be: why is it that people like John Fry argue that he can manage, with some delegation of tasks to collaborators, a list size of 4,500? Is his behaviour or that of his colleagues inefficient?

The scope of on-the-job leisure generated by more collaborators and lower list sizes is considerable. Whether the Manchester results, with some GPs having only 15 hours patient contact time per week, are typical only further research will reveal. However, in theory (and it can be seen

from casual empiricism too) on-the-job leisure may be a characteristic of some parts of the FPS system. Furthermore, when patients tardily complain, this problem is difficult to rectify. Disciplinary action by the local FPC medical services committee may get reversed by the Secretary of State and even when upheld imposes minor fines which usually seem to fail to change behaviour.

So the producer can get a quiet life with generous remuneration. The minority(?) of GPs who indulge in on-the-job leisure will typically not be called to account and the idle and the workaholic alike can evolve service patterns which reflect their interests and their convenience.

(iii) What does the taxpayer get?

The taxpayer gets the bill and is bombarded with rhetoric by the medical profession and the Government, of all complexions, that the primary care system is cost effective and the best in the world. Policy making, initiated by Government and usually (but not always) sanctioned by the medical profession, is *ad hoc* with no clear definition of policy goals and an absence of system-wide strategy even to pursue the weak goals that are articulated.

With the budget open-ended and determined by the suppliers (GPs), expenditure can and does over-shoot public expenditure targets. Furthermore in the recent past FPS over-runs have been funded by cuts in the cash-limited hospital budgets. The Treasury cannot control expenditure because practitioners are self-employed contractors and as such they can, if the pay settlement is meagre, augment their incomes (and, by so doing, increase our tax payments) by increasing their activities for fees per item of service.

The occasional attempts to control expenditure are usually weak. Apart from moral-suasion ('be reasonable chaps!') about expenditure generally, the usual specific controls are applied to the drug budget. This policy is fraught with difficulties because on the one hand the Government seeks to ensure the prosperity of the pharmaceutical industry with the use of the Pharmaceutical Price Regulation Scheme (PPRS) which guarantees a rate of return on historical capital, and on the other hand it seeks to reduce drug costs to the NHS. Thus in 1984 the debate about limited lists was seen by the Minister as an economy measure aimed at controlling costs and as an assault on profits by the drug industry. In the event there is evidence that GPs, instead of prescribing cheap harmless herbal remedies are now giving branded and generic products which may cost as much or more. There are many ways to skin a rabbit and the limited list option should have been tried, tested and compared to alternatives in a careful experiment.

(iv) What are the objectives of policy?

Whilst deviant producers (GPs) can consume on-the-job leisure there is a growing awareness within the profession that all is not well and the 'golden era of peace and plenty' is drawing to a close. There is an urgent need to evolve policy targets which the GPs, the patients and the State can pursue with an agreed strategy. Some plausible short-term targets could be:

i annual re-contracting by patients where possible, with all consumers each year being offered the choice of alternative practitioners;

ii detailed statements by practitioners about the timing, location and nature of services offered;

iii enhanced public encouragement and funding of 'experiments' in general practice (see below).

Clearly there are no easy solutions to the problems of general practice. One man's cost is another man's benefits and thus attempts to control expenditure and define agreed patterns of care will impose costs on practitioners which will be rejected by some. In the limit, the Government has to decide whether it will continue to be the passive bank clerk who pays the GPs or the careful buyer of practitioners' services. Can she/he who pays the piper call the tune or at least define the score?

Better incentives?

There are many ways in which the general practice market could be reformed and incentives improved so that practitioner performance is related more closely to patient demand. Each of these reforms needs careful specification and evaluation in experiments.

Alternative 1

Current policy seems to be directed at encouragement of GPs to set their house in order along the lines, for instance, of the Royal College's Quality Initiative, and the reform of the FPCs.

Ignoring the problems of collaboration with other parts of the health sector generated by the 'hiving off' or independence of FPCs, they seem poorly designed to control expenditure and practice. The FPCs are price takers

(prices are set each year by the Review Body) and ciphers who pay the producers their due. Potentially FPCs have a useful data set but typically their operations are Dickensian with people using quill (biro) and bundles of paper which ended up piled in heaps on the floor! Cautious investment in computerisation is under way, with Central Government attempting to design system solutions for hard and software in its usual slow and cumbersome manner.

If this data stock could be mechanised and extended, practices could be monitored. Again extensive local experiments with careful evaluation would seem sensible rather than the slow evolution of system-wide solutions. The selection of 10 or 15 FPCs who would be given total freedom to spend their administrative budget, together with scope for borrowing to computerise now and pay back in five years, would be useful ways of 'letting a thousand flowers bloom', ie, using diversity to illuminate the costs and benefits of alternative practices.

Two other reforms could be associated with the liberalisation of Central Government control. Firstly the employment contract should be revised with the ultimate objective being (and this needs to take place in the hospital system too) the replacement of the present 'job for life' contract with a contract for six years with 3 year reviews and rolls-forward.

A second reform could be the identification and prohibition of introduction of all new practices and drugs until they are proved, by trials, to be cost effective. The 1968 Medicines Act controls 'quality, safety and efficacy' and could be extended to costs and all new therapies so that only activities *proven* to be effective *and* least cost would be introduced and used.

Alternative 2

The preceding package of proposals (alternative 1) could be augmented by budgets for some items of GP activity. For instance five years ago (in Medeconomics) the present author advocated the institution of drug budgets for GPs. Thus each year the GP would receive say £30,000 and all drug expenditures would be charged against this income. If the GP spent less than £30,000 in the year, she would be better-off. If she spent more, her income would be reduced. There are many potential problems (eg, particularly expensive cancer drugs) but once again experimentation seems merited. Why not design and carry out an experiment and 'confuse' policy discussion with facts rather than often self-interested rhetoric?

Another budget innovation might be the introduction of capitation fees for the services of a pharmacist. Thus consumers might select a pharmacist and 'sign up' with her. She would keep the patients' pharmacology records (contra-indications, cross effects, etc) and have the power to re-write the GP's prescription. What effect would such a mechanism, which led to the monitoring of GP prescribing, have on drug costs? Again some experimentation might generate some answers to this question.

Alternative 3

It was the present author who, at the OHE meeting at Cumberland Lodge,[4] proposed budgets for GPs. This idea was discussed in the meeting's proceedings by Marshall Marinker and George Teeling Smith. Basically the proposal is that each patient has a per capita value which is translated into the GP's income when the consumer selects and signs on with her GP. Thus the GP generates her income by

competing for patients and she uses this income not only to finance primary care but also to 'buy-in' hospital and other services as needed. Such services could be bought in from the private or the public sector whichever is cheapest.

This arrangement would create a market in care with the GP and his partners seeking to maximise her return (income less expenditure) by monitoring the use of services and their costs. Any attempt to cut costs at the expense of quality would lead to the loss of patients and hence income. The GP would monitor and minimise the use of hospital services because the hospital's income is the GP's expenditure! By giving the GP the budget she is given an incentive to manage resources efficiently. Careless use of drugs, diagnostic tests or hospital care would impose a direct opportunity cost on the GP. Activity would have to be monitored and peer review quick and effective if costs were to be minimised. A partner's absence on the golf course would have clear cash-flow effects and incentives such as this would ensure internal review and strenuous efforts to meet the demand of consumers.

Is there evidence to substantiate such conclusions? There is interesting evidence from the United States where Maoism has been adopted on a wide scale! For instance, one version of a 1,000 flowers blooming is the Health Maintenance Organisation (HMO) movement which typically exemplifies such incentive structures. Careful experimentation has shown[5] that the HMO is cheaper than alternative forms of care and that, for instance, hospitalisation costs may be up to 40 per cent less. Further evidence has been summarised by Luft[6] and Enthoven[7] although interestingly, the relative advantage of HMOs seems to be declining as competing organisations cease to be passive and begin to use their buying

powers to control the price, quality and quantity of care provided by practitioners and hospitals. Clearly individuals and institutions have to be monitored continually to identify their costs and benefits.

It is curious that some of these proposed innovations are seen as threats to the National Health Service. The present author's views on the NHS are set out clearly elsewhere[8] and the introduction of HMO-like budgeting systems are not necessarily a threat to the service's existence. Such mechanisms would change the service, reducing existing perverse incentives and making possible the existence of public finance of care but wholly private provision. Such an outcome would be dependent on the private sector being more efficient in providing care and it is not obvious that a competitive internal NHS market system would generate such an outcome.

Conclusion

There is a need to reform radically the pattern of primary care in the United Kingdom. At present it is a 'black box' with perverse incentives which reward hard work and idleness in a similar fashion. There is a need to illuminate the contents of the black box by careful research such as that carried out in Manchester. Equally there is a need to experiment with alternative patterns of reform (eg, particular forms of alternatives 1 to 3 above) so that the incentives for practitioners to perform efficiently are increased. Any such reform requires more information about performance, which can only come from evaluation, and the creation of greater uncertainty for providers. Labour, even miners or academics, should not have a 'job for life' and a necessary condition for greater efficiency in the hospital sector and

general practice is the radical review of doctors' contracts.

The implementation of reform will be an arduous task as Mao noted, in particular because such reforms will be opposed by professional associations, the income of whose members will be threatened. However, as Adam Smith argued, such corporate activities might not be in the interests of the consumer:

'That pretence that corporations are necessary for the better government of the trade, is without foundation. The real and effectual discipline which is exercised over workmen, is not that of his corporation, but that of his customers. It is the fear of losing their employment which restrains his frauds and corrects his negligence. An exclusive corporation necessarily weakens the force of this discipline.' – Adam Smith (1776).[9]

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26

Regulating the pharmaceutical industry*

Editors' Commentary

Two sources of inefficiency in the NHS were the regular introduction of drugs which had not been demonstrated to be effective or cost-effective, and the guaranteeing of profits to the pharmaceutical industry through the Pharmaceutical Price Regulation Scheme, irrespective of the value of their products to the consumer. This paper argued for a "fourth hurdle" of comparative cost-effectiveness before drugs and other health technologies are paid for by the NHS. It also argued for open and transparent reporting of prices so that the real costs are clear and also for open publication of all the data held by companies from trials of drugs and devices. Whilst global pharmaceutical firms are understandably reluctant to share details of the price discounts offered internationally to different customers, the other recommendations have been implemented. The establishment of the National Institute for Clinical Excellence (and equivalent bodies in other countries) was a major step forward in deciding what would be paid for by a health service on efficiency grounds.

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Pricing should be renegotiated to control research costs and encourage cost effectiveness

The pharmaceutical price regulation scheme[1] is a voluntary agreement between Britain's Department of Health and the Association of the British Pharmaceutical Industry in which companies negotiate generous target profit rates from sales of drugs to the NHS (17-21% rate of return on investment in research and development). The scheme's objectives are to secure the provision of safe and effective medicines to the NHS at reasonable prices; to promote a strong pharmaceutical industry in Britain; and to encourage the efficient and competitive development and supply of medicines worldwide.[1] The scheme was renewed in 1993 for five years and is currently under review. Although the scheme has been successful in helping to maintain the British pharmaceutical industry, its objectives conflict, and the way the scheme operates pays little regard to other health policy objectives. As the price of renegotiation, the government should request changes to the scheme, to minimise the inherent conflicts and to ensure that the scheme supports other policies.

There is considerable evidence of the scheme's success at achieving a strong industry.[2] However, drug prices in Britain are higher than those in other countries, and there is much debate about what is a "reasonable" price for the NHS. For the Department of Health a conflict exists between its own attempts to control NHS expenditure and the scheme's implicit subsidy of the industry's research and development. If cost containment measures – such as encouraging the use of generic drugs, provision of prescribing data, and other policies aimed at general practitioners' prescribing – threaten

profits, the price regulation scheme may allow companies to increase prices. The scheme may also reduce companies' incentives to control their research costs. Finally, there is no attempt to link prescribing with cost effectiveness: products that are cost effective and those that are not are treated equally under the scheme.

In renegotiating the continuation of voluntary profit regulation the government should require the industry to make four policy changes. Firstly, as supported in principle by the House of Commons Health Committee,[3] a "fourth hurdle" of comparative cost effectiveness should be adopted by the NHS before it agrees to pay for new drugs. This has been required in Australia since 1993,[4] where new drugs with no advantage over existing products are offered at the same price. Where clinical trials show superiority, incremental cost effectiveness is assessed to determine whether a product represents value for money at the price sought.

The implementation of this type of hurdle in Britain requires restriction of publicly reimbursed drugs by a positive list. The existing voluntary guidelines for the economic evaluation of pharmaceuticals[5] should be made compulsory for all new products. The cost of the studies and the reimbursement system should be met by industry. Studies should then be reviewed by independent researchers and a panel of medical professionals and economists. This would facilitate national prioritisation of drug treatments and avoid problems of differential access to new products such as interferon beta for multiple sclerosis and new drug treatments for Alzheimer's disease.[6]

The second suggestion is a more explicit annual report on the scheme to parliament. The first ever report was published in May 1996 and was opaque. In future this report should reveal not only the complicated way in which the scheme works but also its achievements in engendering efficient research and development within the industry. The real cost to the taxpayer of the scheme should be made explicit and be open to debate. The report should also log the number and novelty of the new products which have been produced over a specified period. Novelty – chemical and therapeutic – should be judged by an expert panel.

Thirdly, access to data generated by pharmaceutical companies' research programmes should be increased. Regulation should be introduced to ensure that all data relating to licensed drugs are made publicly accessible and all drug trials are registered prospectively with the Committee on Safety of Medicines and in the National Research Register. It is unethical to ask patients to participate in drug trials without the resulting information being made publicly available to guide their choices and future research and policy. Schering Health Care has already set an excellent precedent by making information about all its unpublished and current trials available through the Cochrane Controlled Trials Register.

Finally, if pharmaceutical industry research is to continue to be subsidised by taxpayers, policymakers should determine, at the margin, the prioritisation of research and innovation. The industry would be expected to respond to these stated priorities, aided by annual reporting of progress. Research within the priority areas could be taken into account in setting individual companies' profit targets within the

scheme. Companies which did not address these research priorities could be penalised, generating funds which could be directed to universities via the Medical Research Council.

These four policy innovations will result in a more efficient scheme for regulating British pharmaceutical industry, rewarding better the manufacturers of the most effective drugs through higher prices. The policies could also facilitate national prioritisation of drug treatments and increase the quality of information provided to prescribers and other NHS purchasers about new drugs. In time, as these innovations affect resource allocation, they may induce greater confidence that the goals of pharmaceutical policy, both industrial (increasing wealth) and health (improving population health), are being addressed. Without explicitness about the goals and performance of trade and health policies, drug expenditure will continue to inflate with little accountability and insufficient benefit for patients.

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