Proceedings of the Second Trilateral Physician Workforce Conference
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The Health Human Resources Unit (HHRU) was established as a demonstration project by the British Columbia Ministry of Health in 1973. Since that time, the Unit has continued to be funded on an ongoing basis (subject to annual review) as part of the Centre for Health Services and Policy Research. The Unit undertakes a series of research studies that are relevant to health human resources management and to public policy decisions.

The HHRU’s research agenda is determined through extensive discussions of key current issues and available resources with the senior staff of the Ministry of Health. Various health care provider groups participate indirectly, through on-going formal and informal communications with Ministry of Health officials and with HHRU researchers.

Three types of research are included in the Unit’s research agenda. In conjunction with professional licensing bodies or associations, the HHRU maintains the Co-operative Health Human Resources Database. The Unit uses these data to produce regular status reports that provide a basis for in-depth studies and for health human resources planning. The Unit undertakes more detailed analyses bearing on particular health human resources policy issues and assesses the impact of specific policy measures, using secondary analyses of data from the Co-operative Database, data from the administrative databases maintained under the HIDU, or primary data collected through surveys. The HHRU also conducts specific projects pertaining to the management of health human resources at local, regional and provincial levels.

Copies of studies and reports produced by the HHRU are available at no charge. (See final pages of this document for a listing of HHRU studies and reports.)
ACKNOWLEDGEMENTS

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The First Trilateral Physician Workforce Conference involving the United States (US), United Kingdom (UK) and Canada was held in Washington DC in November 1996. The Conference objective was to share experiences of the three countries with respect to physician workforce planning and management, to identify degrees of commonality and differences in issues, solutions, and policies adopted by the three countries. The conference focused on physician supply and requirements determination, physician immigration and emigration, geographic and social distribution, postgraduate medical education and residency training issues. Finally a panel of experts discussed drawing the link from data analysis to policy change. The Conference was funded by the Macy Foundation, US Bureau of Health Professions, Health Affairs and AMA.

Canada hosted the Second Trilateral Physician Workforce Conference in Vancouver in November 1997. The themes for the conference included issues related to ‘overservicing’, ‘primary care reform’ and ‘substitution’. The themes were considered to reflect the common priority issues and concerns confronting the three countries in the area of physician workforce planning. Physician workforce planning had again become a major issue, as some countries had begun to forecast physician shortages in the next few decades. Canada is at the centre of this debate, as its physician supply-per-capita figures have begun to decline recently after over 40 continuous years of (at times rapid) increase. Physician workforce planning and management requires the co-ordinated involvement of a number of stakeholders, and the participants were chosen to represent those organizations and interests that have to be part of the discussion to ensure continued dialogue and concerted action in Canada.

As with the previous meeting, the overarching objectives of this symposium were to:

a) enhance understanding of the political and social forces bearing on physician resource policy in the participating countries;
b) compare current policy approaches (and research methods and findings on which they may draw, or which are indicative of their relative effectiveness), that show promise in each country in addressing selected thematic issues;
c) consider the potential for (and barriers to) international policy learning and cross-fertilisation in the physician resource policy area;
d) continue the development of a network of academic and policy leaders in the three countries who can maintain channels of communication and policy learning, and promote same in their respective jurisdictions;
e) produce a series of papers and discussions that could be disseminated through a number of avenues, post-conference.

This document has been put together in recognition of the last objective. In it, we present edited transcriptions of the plenary speakers, the discussants, and summaries of the discussions, as well as edited versions of the papers presented at the conference.

The conference opened with a plenary on the relationship between cost constraints and workforce planning which invited participants to ground their speculations in a consideration of the accounting identity by which the inputs and outputs of the system were necessarily in balance, so
that to change one aspect of the system was to have an impact throughout the system. The discussion which followed looked at the available strategies for workforce and budget management, the role of technology in affecting system costs and the relationship between political will and the implementation of change based on research.

The first session examined claims of, and evidence on, the provision by physicians of inappropriate or unnecessary care. The papers produced for this session explored the evidence on over-servicing, and the policy implications and approaches, in each of the three countries. The discussant then demonstrated another approach to the problem of identifying overservicing, while the discussion which followed ranged around issues having to do with over- and under-servicing, the difficulty of changing physicians' patterns of practice, and the relationship between specialisation and overservicing.

The second session explored developments in primary care organisation and financing in the three countries, with the objective of sharing experiences regarding what was happening in each, what seemed to work (and in meeting what objectives), what seemed not to be working, with what effects on costs, quality, patient satisfaction, etc., and what stood between intent and application in jurisdictions (such as Canada) where very little has yet happened. The discussant gave his views on the changes in primary care practice and service provision that he had seen during a long career as a primary care provider, and participants in the discussion that followed debated international differences in planning for and delivering primary care as well as the roles of medical education and substitution in primary care.

The evening plenary provided the participants with an overview of medical workforce planning in Australia, and the next morning the conference went on to examine the evidence on, and political, legal, and other impediments to, substitution for and among physicians in the provision of clinical care. Nurse practitioners, physician assistants and midwives are much more widespread in the U.S. than in Canada, but in both countries, their scope of practice seems, at least in part, to be a function of the number of physicians prepared to practice in the local area. In response to the U.K.'s new-found 'physician shortage', the issue of substitution is beginning to be explored. But while this type of substitution (of non-physician personnel for physicians) is the most commonly studied, there may be ample scope for a more generalized phenomenon of 'pushing down' the requisite skill-set in response to any given mix of clinical conditions. The extent of substitution, in the end, seemed to have much to do with the available mix of personnel. The discussion which followed touched on different professions' definitions of substitution and scope of practice, on the role of the organisational context of care in determining provider mix, as well as the impact of budget limitations and rising income expectations.

The final plenary provided some commentary on the material presented, and sounded a warning note about changes in medical service provision such as substitution, which might reduce the quality of care. The importance of evidence-based medicine was emphasised, as well as the changing dominance of the medical profession in decision-making about access to care and the seemingly universal way in which costs seem to drive health policy.
Opening Plenary

Physician Resources Policy Challenges: Déjà Vu All Over Again.

R.G. Evans
PHYSICIAN RESOURCES POLICY CHALLENGES: DÉJÀ VU ALL OVER AGAIN

BOB EVANS

Lest people feel at all discriminated against because of the lighting in this room I want to point out that this podium does not have a light socket, so that the only place I’ve been able to find in this building so far where I can actually read my notes is in the bathroom, and I thought that might get a little crowded. I brought my notes along, but I have no great confidence in being able to see them. Whether this makes a difference to the presentation I’ll leave you to judge. You’ll see. But enough with these vision jokes. The other thing about coming to a conference that is fundamentally about matters related to health, is that I’ve done a fairly poor job of looking after my own, so this talk will probably last about as long as my voice does, rather than necessarily as long as is listed in the program.

Morris mentioned some of the earlier publications in my official list. But in preparing for this talk and this conference, and reading over the papers prepared for it, I was reminded of a still earlier publication which I think is relevant to what I want to say. My first publication in health care, which is not on the vitae, was actually in the Toronto General Hospital nurses’ yearbook of 1963. I was just finishing up as an undergraduate at the time. Why was I publishing in the Toronto General Hospital nurses’ yearbook? Well, my fiancée was the editor, and so I learned early on, publish anywhere you can. The paper was a commentary on the so-called “Crispo Report”. John Crispo was and is a distinguished labour economist in Toronto and he was just starting his career then. His report was addressing, among other things, the perceived problems of the day in Ontario (this was in the early to mid-1960’s) in nursing, and one of the principal problems was of course, the desperate shortage of nurses. The Canadian hospital system was gearing up and expanding at that point and the baby boom still had not quite collapsed (it collapsed between 1964 and 1966), but it took a while for people to get the message. And it was pretty obvious that a very large pool of trained nurses existed out in the general community. They had gone through the training and worked for a year or two, perhaps, and then dropped out. This is a long time ago. This is back when nursing was still the sort of thing that a respectable young lady might get the training for, work a year or two, and then get out and get on with the more serious business of getting married and starting a family, and so on. Things change. The question at the time was, could you use that pool of trained talent, could you draw that back into the field to deal with the shortage?

The answer that was being offered by the Registered Nurses Association of Ontario was, yes, and the best way to do that would be to raise nursing salaries. Now, even to an economics undergraduate the thought rapidly occurred that if you raise nursing salaries, you will confer substantial benefits on the nurses who are already in the workforce and are planning to remain in the workforce. Whether this would have any impact at all on drawing people back in was wholly unclear, because no one really knew why they had left, or not even started practicing in the first place. So it is a policy recommendation which is at least questionable in its effect on the named objective, but will certainly have significant side benefits for people who are not supposed to be the targets of the policy. Of course, those people are the ones who recommended it.

So that wasn’t terribly mysterious, and it seemed like something that was worth writing a little piece on, and it has its deserved obscurity, or so I thought, until I read the paper by Jenkins-Clark and Carr-Hill. Now you can see the Brits are really economizing all through the system here. You have four authors compressed into two. Lo and behold, I find that we’ve got a shortage of nurses in the UK. Now, the nature of this shortage, curiously enough, is simply that the number
of people employed in nursing seems to be falling. I would have thought that if the hospital sector were shrinking, that was probably a natural thing to happen—it would not necessarily represent a shortage. Anyway, the numbers are going down and something ought to be done about it. What do we find? We find the professional organizations saying, yes, it’s a serious problem here, people are dropping out of nursing, there’s a pool of talent out there that we could draw on that’s out in the general community, if only we raised all our salaries. Apparently this happens.

Then a little later on, the Ministry of Health suddenly tumbles to the fact that maybe this is not the most efficient way of drawing people back into nursing, but maybe it is the most efficient way of rewarding the people who are already in nursing, and maybe that’s why they recommended it. You will no doubt have noticed that this is the mid-1990’s. Thirty years have gone by and we’re hearing about exactly the same thing. It’s enough to make you feel young again. It’s certainly a comfort to know that the issues you thought you had something to say about thirty years ago are still here and you can still say the same things. You don’t actually have to learn anything new, and you still get invited to talk about it. One of my colleagues, formerly at McMaster, now in Alberta, David Feeny, said that health economics is a strange field, because you can benefit more and derive more professional recognition from saying the obvious and repeating it than in any other field of economics. And the funny thing is, he’s right.

Now, apart from reminiscing, what is the point here? Well, there are a couple of points. One is the extraordinary persistence of issues in this field. Morris was kind enough to suggest that my publications have stood the test of time. I think all that says is that we’ve still the same problems out there, that to a very large extent we’re dealing with exactly the same problems that people were talking about in the 1960’s, the 1970’s, the 1980’s. And we’re not just talking Canada here. There’s an international process where very little changes in terms of the basic policy and planning issues facing health care managers in all developed countries. I’ll try to explore that a little more later. So persistence is, I think, one of the biggest things that you have to wrestle with in this field. What makes us think that this conference is going to make much difference?

The second point that I want to draw from this, and I think it tends to explain the persistence, is that virtually everything you do, or try to do, or think about, or talk about, in the field of whatever you want to call it, manpower, personnel, human resources (pick whatever name you prefer), is going to be tangled up in a conflict of objectives. It is going to involve multiple and often directly conflicting objectives, and those will be strongly promoted right across the policy spectrum. We are never going to have the luxury of what Richard Nelson calls the steersman metaphor, where we have a well-defined problem, we all get together, we figure out what the problem is, we figure out what the appropriate solution is, and we do it. The steersman metaphor says we’re all in the same boat, and we’re just trying to figure out where best to direct the boat for our mutual benefit. The reality of the health care situation is that we’re not anything like in the same boat, there are highly conflicting objectives, and they are the same conflicting objectives they always have been. That is why it is so difficult to make much in the way of progress.

Now, let me make that concrete as a pair of questions that it seems to me you have to ask about any proposal in the health human resources field. The first one is, whose jobs are you going to “downsize”? In the case of physicians, you can either try to get rid of a job (although if they’re independent fee-for-service practitioners, it’s not immediately clear how) or you can simply reduce the rate of pay for that job, so that when we think about it, some of the proposals that are currently on the table represent ways not necessarily of putting doctors out of the field, but of just paying them less. But in the case of nurses, and hospital workers generally, of course, it’s more typical that we just get rid of their jobs. So, if you’re going to do something new and different, it comes down to whose job are you going to zap, or if the answer to that is nobody’s, then we’re left with
the second question - where are you going to get the new money? One or the other, maybe both, but you can’t get away from that pair of questions.

You can get away from them rhetorically, you can keep people confused, and I think that’s part of what was going on with the example I took from Jenkins-Clark and Carr-Hill’s paper. (By the way, it’s not a major part of their paper, it’s just one that I jumped on because it sort of rang an old bell for me.) The argument that was being made was that turnover is so expensive that if you paid nurses more you could reduce the rate of turnover and the savings from lower turnover would more than pay for the additional salaries for the nurses. And if you believe that, we have some very nice bridges here in Vancouver in which we’d like to interest you. They need a bit of repair, but once you repair them, they’ll be worth so much more. If you take it seriously, it immediately says, or should immediately lead you to ask, “Suppose you increase the pay for the working nurses, whose income falls?” Unless we’re talking about putting more money in total into health care, somebody’s income has got to fall because every dollar of income is a dollar of expenditure. Somebody’s income has got to fall in this system if you’re going to stabilize or reduce overall costs. Well, maybe it’s the incomes of the administration, the human resources department. Lower turnover, you don’t need to have as many people in administration, and you can fire some of them. That’s always a good idea. Everybody in health care is in favour of getting rid of administrators and substituting them with people who actually provide health care. Maybe you could do that. But of course those jobs weren’t specifically identified by the advocates of the pay increase for nurses. I don’t think there was any suggestion that you knew whose jobs were going to disappear, that you could say with conviction, these jobs will be gone.

Alternatively, one might argue that because we don’t have to be constantly training new people and having them learn the ropes and so on, we can get by with a lower overall nursing establishment. In other words, by having people in their jobs longer, we will actually need fewer nursing jobs. Now I’m pretty sure that’s not what the professional organizations had in mind, fewer but more highly paid jobs for nurses, and enough fewer jobs that you actually save money in total. But that would be another way of doing it. I suspect what they really had in mind, to the extent that they had anything specific in mind, was, if we don’t have a lot of turnover, people will be more effective in their jobs, we won’t have to have new nurses constantly learning the ropes, and we will get more and better output from the same staff. OK, so you’re telling us about improved productivity and so on, along with perhaps higher costs?. But originally you said this was all going to save money. Yeah, but we lied. You know we lied; you shouldn’t have believed us in the first place.

So what I want to emphasize is that the inevitable relationship between the number of personnel that you employ and the level of income at which you employ them overrides virtually everything that you try to do in the field of health manpower. Where you sit on this tends to set your objective, and it’s impossible to align the objectives of all the interests affected by policy change.

I don’t want particularly to pick on nurses, because we’ll see this coming up in a number of other areas as well. Yesterday our Centre held a conference that some of you were at, right here in this hotel, sub-titled “New Opportunities For Old Mistakes”. That conference was focusing on Canadian physician supply, and observing that the forty year increase in doctors per capita in Canada has leveled out recently and may in fact now be turning down. And the immediate response is, we’ve got to start training a whole lot more new doctors, rather than saying, maybe this is an opportunity to do other kinds of things, to take up opportunities we let slip away 30 years ago.

In the discussion around the conference papers, one of the themes that came out toward the end was, yes, but we owe the children or the parents of this country the opportunity to have their kids get into medical school. This was put with great passion from the floor, that it was grossly inequitable and improper that people in some provinces of Canada have a lower chance of getting
into medical school because there was a lower ratio of places per capita than in other provinces. There was even a suggestion that this might violate the Canadian Charter of Rights and Freedoms, that there is this fundamental human right to go to medical school and that this had to be equalized across the country.

Well, at this point what we have again is the proverbial tail wagging the dog. Rather than thinking about manpower policy or manpower strategies as a way of ensuring services for a population, we've got them presented as a job creation program for the upper middle class. Now that's always popular; those sorts of policies derive a great deal of political support. The point I want to emphasize is that we have as a significant consideration (because it has been a significant consideration over the years on decisions about medical school sizes in Canada, and it's coming right back again from the medical schools themselves), this notion that we need to expand throughput in order to provide employment opportunities, not only for the people who want to be trained as physicians, but also to maintain the employment opportunities for people who work in health sciences centres, which is also extremely important. The whole question of whether you really needed the extra doctors drifts off the radar screen, kind of gets ignored, or suppressed - or, let's see if we can avoid thinking about it entirely.

Now, I can formalize this set of questions with the construction of an accounting identity, and I think it's extremely important to recognize that it is an identity. This is not an economic theory. It is not subject to refutation. It can't be wrong. It can be irrelevant, it can be unhelpful, but it can't be wrong. That's sort of like accountants, you know. You can make mechanical errors, yes, obviously you can add things up wrong, make a mathematical mistake. But assuming that you haven't done that, it is the case that in any country's health care system there will be an equality between the total quantity of revenues that are raised to pay for that system, the total quantity of expenditures on the products of that system (the products are the goods and services), and the total quantities of incomes that are earned within that system. Those things all have to be equal.

Figure 1

<table>
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<tr>
<th>REVENUES ASSEMBLED</th>
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<tr>
<td>From taxes, user charges and private insurance premiums</td>
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<td>[T + C + R] must equal</td>
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<tr>
<th>EXPENDITURE ON HEALTH CARE</th>
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<td>Quantities provided multiplied by prices</td>
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<td>[P x Q] must equal</td>
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<table>
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<tr>
<th>INCOMES EARNED FROM HEALTH CARE</th>
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<td>Factor inputs multiplied by input prices</td>
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<td>[W x Z]</td>
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We collect the revenues in three different ways. The predominant form of revenue collection in all modern health care systems, including, interestingly enough, the United States, is taxation. Now, the United States data are not presented that way, because it turns out in fact that some of the public subsidy goes through the back door as tax expenditures, but the reality is that in all modern systems the major share of revenue comes through taxation, with secondary and tertiary sources being private insurance premia and user charges. Those funds then get distributed and become the total expenditures on health care, which will be a function both of the quantities of services provided and the prices that are charged (implicitly or explicitly) for those services. And in turn, that money will flow into the pockets of the people who make their livings from this sector. That will be a product of the total numbers of people and levels of effort that are provided, the “Z”, and the wage rate or income, “W”, so it, too, involves both ‘prices’ and quantities.Crudely, it’s the number of jobs and the rates of pay, although it takes a lot more words to get it pinned down precisely.

That leads us to the balancing equation, which has to hold. So again, to reiterate, anything you do at some point in the ‘manpower’ system has to show up somewhere in that equation, and indeed, it has to show up in at least two places in the equation. The accountants are kind of like the ecologists who say that it is impossible to do only one thing - if you are going to do anything to one part of a balancing relationship, it has to turn up somewhere else as well. Most of the proposals that we look at for changes in health care systems generally, not merely those related to personnel, can be traced through that equation. When you start talking about manpower substitution in an equation like this, what you are saying is that we could reduce the number of high priced people in this system, particularly “Z”s, get rid of them, send them to the United States, export them somewhere, give them one way tickets, and replace them with less costly “Z”s, nurse practitioners let’s say, people who could do the same jobs for lower wages. In this example, we might have the same number of people in the system, but the overall average rate of pay for those people will go down, because we will use less expensive substitutes. Now, if the “W” goes down and the “Z” stays constant, and if the new “Z”s are equally effective, then the “Q”, the quantity of services will not change, but the average price will go down.

Needless to say, that doesn’t happen, or hasn’t happened. While you are steadily increasing the supply of physicians, as we have done in Canada for forty years, until about 1989/90, as you keep those “Z”s rising, unless you can figure out a way to keep cutting physicians’ incomes at the same time, the increased costs have to be pushed forward into the rest of the system, and the way they are pushed forward has been through increasing rates of “T”. The level of taxation required to support this part of the system has continued to climb, and the revenues have had to increase in order to balance the numbers of income recipients “Z” coming in.

One way you could deal with that, perhaps, is to cut the system somewhere else, or cut back elsewhere in the public sector, because this is a global relationship. So, for example, if you’re going to increase your expenditures on physicians and on prescription drugs (they’ve also been increasing quite rapidly, in which case the money goes to shareholders and researchers and people like that; it still fits into this equation, just a different group of people), maybe you could pull the money out of the hospital system. And in fact we’ve been doing that. Acute care hospital use in Canada has been falling steadily since the 1960’s. It has been masked or cushioned by concurrent increases in capacity in long term care. So what that amounts to is eliminating people and jobs in the hospital sector to finance an increasing physician supply. You can do that. Needless to say, the nurses are not going to be particularly happy about that. Michael Rachlis made the point very strongly at yesterday’s conference, and may again today, that what’s been going on in recent years in Ontario has been a collapse of efforts to contain physician incomes, meaning that for physicians the wages have gone up, the “W” has risen, and that too has been offset, or is being offset, by firing nurses. So, in aggregate the “W”s for doctors go up, the “Z” for
doctors has gone up, the “Z” for nurses goes down, you try to contain overall costs, but you redistribute within the health care sector, which brings us back to the initial question—whose job are you going to downsize? If you want to add something new, who are you going to zap? And if the answer is “We’re not going to zap anybody,” then the next question is, “Where are you going to get the new money?” In the Ontario case, they eliminated a bunch of jobs and used the money saved from that to increase the rates of pay of another group of people in the same sector.

Generally speaking worldwide, certainly in the Canadian setting, what seems to be happening is that the pharmaceutical sector is doing extremely well and the physicians seem to be holding their own (although there is a lot of unhappiness out there), and the hospital sector is being very radically downsized. The questions that are addressed at this conference about primary care reform, about over-servicing and about substitution, then have to fit into that reality, and into this equation. You cannot avoid it; if you try to, it will find you. If you’re concerned about over-servicing, what you’re really saying is that the level and mix of quantities provided are too high; too many of the wrong things are being provided. The policy objective is to reduce the level of “Q”. If you do that, and you keep the “P” constant, you will indeed save some money, but again, someone’s income has to suffer. Either someone has to make less money or there have to be fewer “Z”s as a byproduct. And if the response is, we’ll do less of those things, but more of something else, all you’ve done is change the mix of the “Q”, you haven’t changed the total, and you haven’t actually dealt with your cost issue (if cost is also an issue), but you have solved the threat to the incomes issue.

You can take any policy and run it through this equation and expose similar trade-offs. The issues that we are addressing in this conference actually have a very long history, and they arise, I believe, from the conflict between two different perceptions of the causal sequence underlying this identity. Accounting identities can be fascinating, because they tell you about the constraints, they tell you about what must happen. If you do this, something else must adjust over there, and you can interpret particular policies within that framework. They don’t tell you anything about causality, and they don’t tell you anything about the overall objectives or desirability of particular changes. They provide a framework within which different objectives can be reflected, but do not get us around the fundamental conflict among interpretations of what the causal sequence is that connects up the variables in the equation.

Let me suggest what I think is the traditional viewpoint of how health care systems or health care management is supposed to work. This is pretty obvious stuff. Ideally, in principle, we’d like to believe that there is some kind of epidemiological relationship out of which emerges the health needs of the population. We then have a clinical system that interprets those needs, figures out what the appropriate interventions are, what should be done in response to those health needs, and then chooses the appropriate mix of personnel and other technologies to meet them.

**Figure 2**

| POPULATION | ➔ | HEALTH NEEDS |
| HEALTH NEEDS | ➔ | APPROPRIATE SERVICES |
| APPROPRIATE SERVICES | ➔ | REQUIRED PERSONNEL |

Within that framework, you can think of the first arrow as representing epidemiology, the second as having to do with clinical effectiveness, and the third as having to do with technical efficiency. When we raise issues of over-servicing we’re really asking questions about the second
arrow: are the services actually being generated by the needs or are they inappropriate for the needs? When we raise questions of substitution, we’re asking about the third arrow: are the personnel employed the most cost-effective, are they the most appropriate given the kinds of services that need to be provided to meet the needs? But this sequence essentially says, left alone, this is how a health care system operates, or should operate, or the logical way in which we would like it to operate.

In fact, the topics of and the papers for this conference suggest a strong counter-current, as it were, a belief that the system actually functions rather differently, that the dynamics are not at all like this. Rather, if you find out what personnel and technologies are around (one of the papers makes specific reference to the fact that the generation of new specialties in health care has to some extent been dictated by the generation of new technologies and new equipment, so that once you have an ophthalmoscope you can have ophthalmologists, but prior to that time you can’t), your available personnel and technology define the kinds of services that will get provided. If you have a hammer, everything looks like a nail. The services provided will then be used to infer needs, so that if the services are being provided they must have been needed, and since all the services that are now being provided meet needs, and since we can always identify some unmet needs, the answer is that we always need more personnel.

Figure 3

| PERSONNEL AVAILABLE | SERVICE PATTERNS |
| SERVICE USE           | INFERRED NEEDS   |
| “UNMET NEEDS”         | PERSONNEL SHORTAGE |

In fact, this sequence was used to guide physician resources policy in Canada for most of the period up to about 1990. There is a classic review of the succession of exercises in physician resources planning in Canada (Lomas, Barer and Stoddart’s review of Ontario’s McDonald Report), which concluded that no more scarce research dollars should be wasted on manpower planning exercises of the type that begins from the assumption that every service provided is needed, adds to that the observation that there is always some unmet needs and concludes that we therefore need more personnel, irrespective of how many we have! So while this may seem like a cynical alternative view of system dynamics, in fact there is a good empirical base for this sort of revised sequence of causality.

Now, I guess what is problematic about this, coming back to my first point, is that none of this is terribly new. This revised sequence, in John Galbraith’s terms, has been around for a very long time. It’s been around for most of the time that I’ve been in this field, but knowing it’s there has not had much impact. We have until very recently continued to base our actual policy on the first causal view, while our research keeps coming back and telling us that the second is operative. As we saw at yesterday’s conference, Charles Wright posed a question about some pretty powerful indications of inappropriate patterns of care (and if you had quite strong evidence that patterns of care were inappropriate and that over-servicing was taking place, surely that ought to give pause to those starting to talk about trying to train more physicians); the immediate response from a number of members of the audience was completely to ignore that question and go on to talk about the desperate need to provide more spaces so that people who want to become doctors can become doctors. It was quite a bizarre performance.
But what it did was it illustrated the conflict between the research that tends to support this framework and the kind of continuing power of the other viewpoint in guiding policy. Coming back to the papers for this conference, we have some very interesting papers on over-servicing that tell us in more detail, and with more sophistication and power, things that we’ve been hearing for thirty years about practice variations. Nothing much new there. We have some very interesting new stuff on substitution of personnel, particularly nurse practitioners for doctors. Again, that literature goes back at least to the early 1970’s. Nothing much new there. Peter Newbery’s paper is saying that it is time to stop wasting our time talking about whether nurse practitioners can do a number of services at the same quality or level of general practitioners. This has been conclusively demonstrated. Let’s stop having that conversation. It’s time to move on from there. But of course that conversation has continued for twenty-five years, because maintaining doubt is part of the process of blocking those changes from taking place.

That, I think, then leads into where I want to finish up. If what we have here is a conflict of objectives and a conflict between policy and evidence, and I think we do (and that it’s gone on for a long time), then the critical question is: what kinds of strategies do seem to be effective in breaking that deadlock? If you go back to the three-part identity (Figure 1), what’s really been driving change in this sector is fiscal pressure. I don’t think there’s any doubt about it. But if you look at that identity and say, why are things changing, why is there pressure to change, the answer is, because we’re having trouble passing everything that we do back into increases in “T”. “T” has stopped increasing, and in some countries it has even fallen, and that is then washing across the whole system.

The immediate reaction by a number of people in health care has been to say, in that case we need to raise “R” and “C”. The obvious answer to government’s failure to fund the system at the level that we want is to see if we can’t get the money from the patients. So we see the resurgence in Canada of a demand for various forms of private payment, being driven pretty much entirely by the pressure to try to keep this whole game of expansion going. On the other side of the policy field, people are starting to look more seriously at more effective mechanisms for trying to change servicing patterns and the distribution and use of personnel, and at the same time, or as a result, mechanisms for controlling costs.

I think we can categorize under three heads the strategies that one can employ. The first is, just plain squeeze. Just keep cutting the budgets, or holding the budgets tight, restrict the supply of different kinds of personnel, don’t permit as many people as want to become specialists, as we’ve done in Canada, as they do in Britain, and as they don’t do in the US. Interestingly, you don’t do it in the US, they don’t do it in Sweden, they don’t do it in Greece - the “oversupply of specialists” problem is not specific to the payment system. It is a general problem, I think, of health care systems if you don’t impose a specific restraint on supply. Okay, so you can use blunt instruments. You just say there just isn’t going to be any more budget. There aren’t going to be any more resident slots. This is how we handle it in Canada. That raises a number of problems, with which you will already be familiar.

A second approach is reflected in the long-standing view that somehow if you change the pattern of organization and incentives within the system, things will be better, that there’s a kind of self-regulating approach whereby the system will somehow automatically move towards better allocation of personnel and better choice of services, if we could only change the structure to make this happen. The economists, I think, have a lot to answer for here, as do the 18th-century philosophers. The view is that it would just be a whole lot better if the system were structured to organize itself, rather than our having to keep beating it over the head with large blunt instruments. I’m not sure that’s true. One of the very real challenges for a conference like this is to confront and interpret the evidence.
Let me offer an example. Back in the 1960’s, everybody got excited about pre-paid group practices. Folks got excited in both directions. Some people thought they were the invention of the devil. Once Paul Ellwood relabeled them Health Maintenance Organizations in the United States, that is, recast them as organizations competing in private markets, everybody said they were wonderful. The big evidence was that people who were enrolled in capitated, group practice-type organizations didn’t use as much hospital care, and there was way too much hospital care being used, everybody agreed on that. So, the obvious answer was to try to expand pre-paid group practice/HMO’s/managed care, reduce hospital use, which would lead to more effective, more appropriate care and lower costs. Good, wonderful stuff.

Now in Canada, we did none of that. We talked about it a lot, and here, too, the talk goes back into the 1960’s. The difference is that nothing happened, and our hospital use has dropped like a stone anyway. Acute care hospital use in BC is down now to about one-third of where it was in the 1960’s. So we’ve had all the effects that were to be attributable to the U.S.-style system restructuring, but it’s emerged from plain old “cut, freeze and squeeze”. And it worked.

Taking the major restructuring route in the U.S., you get the same reductions in hospital use, but you get a whole lot of micro-management laid down as well. The U.S. took a different route and wound up paying for a whole lot more managers. So, in terms of our equation, in the U.S. the numbers of people working in hospitals are down, but the numbers of people working in insurance companies and managed care companies, or as consultants and so on, keep going up. The alternative to the blunt instrument, that of trying to bring in external management to control the system, seems finally to be having some results, but the net result is a lot more external managers to pay, and there is no real sign yet of success on the cost control front. And it’s not at all clear that you’re farther ahead paying management consultants than paying nurses, certainly not if you’re a patient.

In the UK, you’ve gone the other route with GP fundholding, not only bringing in some external managers, but also trying to change the incentives so that the practitioners themselves will change what they do. That seems to have had some effect, all right. But again, the net effect within the UK seems to be perceived shortages of clinical capacity, while costs are actually going up. Since the Thatcher reforms, the UK system has become more expensive and it seems to have done so because of all this extra management - different mechanisms, similar result to the U.S.

So, what I am left with is this sort of broad brush impression that the history of the last ten years or so is telling us that blunt instruments seem to get the results that we say we want, at least in terms of cost control, and in terms of crude measures of appropriateness, such as reducing hospital utilization. Whether we actually get more effective patterns of care is a much more complex question, to which we don’t really know the answer. We have certainly not achieved the personnel substitution that we wanted, but at least Canada has managed some changes in the right direction. Where we have either tried to overlay external management, or change the incentives to get more internal management, we have been much less successful.

I think the difficulty is with what we might call the ‘gatekeeper’ concept, because it embodies two different concepts. If I could use the analogy of a concert hall, one notion is that we want the general practitioner to serve as an issuer of tickets to the hall. Right now in Canada and the UK s/he does serve as an issuer of tickets to the hall, but s/he’s just giving them away. In the US, you don’t need a ticket to go into the hall. In the UK system, the change has been to say that the general practitioner can still give the tickets away, but the general practitioner will have to pay for them themselves, and maybe that will discourage giving away tickets. Inside the hall, a bunch of specialists, each organ, not just organs, sometimes trombones, stuff like that, each virtuoso specialist is doing his or her own thing. Nobody is conducting the orchestra. Sometimes groups of specialists get together and have trios and quartets and coordinate their services in various ways, but there isn’t any orchestra and there isn’t any score. It seems that we have moved away from
wanting the general practitioner to stand outside and restrict access to those services, toward a notion of having the gatekeeper also be the orchestra conductor.

Now, I don’t think there’s any chance of that happening. I don’t think the GP is ever going to be the orchestra conductor, because the dynamics of information within the medical sector are not going to let that happen. The whole principle of medical care is asymmetry of information. I know more than you do, and specialists know more than GP’s about the things that specialists do, or at least that’s the official doctrine. So, I don’t see that that orchestra conductor role is actually being taken on in any system, and I don’t think it’s realistic to expect it. The best you can hope for is that the GP is going to be a little more restrictive in handing out tickets.

The problem you have there is that if at the same time you keep increasing the number of specialists who set up in the hall, they are going to find, as they are doing in the States, political or other mechanisms for preventing the GP’s from playing that role. Once again, we are trying to improve the quality of management of the system within the context of an environment in which there is conflict between the interests of the specialists, the interests of the GP’s, and the interests of the payers themselves. If you create conflict in an attempt to control costs, you’re not likely at the same time to get coordinated care. It’s just not going to happen.

And so we come full circle, back to saying what you really need are the blunt early controls (e.g. saying we’re just not going to train as many of a particular kind of health care professional). You’ve just got to control the numbers, and that’s the key factor. After that, there may or may not be ways of improving coordination, but it will require a dynamite set of tools. Again, this is pretty speculative, but it seems to me to be something that people ought to be worrying about in this conference. Primary care reform is not going to lead to GP’s as orchestra conductors.

A good part of primary care reform in Canada was in fact historically motivated by the desire, not so much to improve the quality of mainstream health care, but to improve access to services for underserved populations and to provide a wider array of alternative styles of practice, and some of that has happened. The interest here was not to change the mainstream structure of medicine. So it’s not surprising that not much has happened in Canada. Now we’re finding that the objectives of primary care reform have shifted. Michael Rachlis has documented this very nicely; the people who were, to a large extent, interested in doing something different, for different populations, are now asking whether these same techniques could not be used to change the way mainstream medicine is structured.

There was one line in Michael’s paper that was very important, where he said there really isn’t much of a political constituency for primary care reform. That’s right, because the pressure for doing it on a large scale is coming from people who think this would be a really neat way of controlling overall costs, and maybe secondarily improving coordination of care and so on. We keep hearing those claims from the commissions, as Michael pointed out. It’s not obvious to me that that is in fact the mechanism for doing it. I guess I used to believe it was, and I still want to believe it is, but that is something this group might want to think about, whether changing the fine structure of primary care is actually going to do very much to shift the patterns of service at the next level up. Yes, we’ve seen the hospitals downsize, and we’ve seen all that change take place, but it really hasn’t resulted from fundamental restructuring, and I’m not sure that we’ve really found out or worked out the really good alternatives to plain old “slug the budget”. That is kind of depressing, particularly for economists who believe in incentives, and I think it’s also depressing for folks who believe in rationality generally, but it seems to me that this is the challenge to be faced at the moment.
General Discussion following Bob Evans’ plenary:

It was stated that Bob had only talked about one strategy, the squeeze strategy. Bob responded that he actually mentioned three. With the first, the squeeze strategy, he had talked about restricting the supply of personnel. An example would be to have no further residency slots for physician training. Another example would be to say, “Do what you want” to physicians, but to decrease the number of beds available at hospitals. The second would be the internal management strategy, which would be to change the incentives for the delivery of physician services. The third was the external management strategy which would entail contracting with a managed care organisation or a consultant or an HMO to come and manage care in the province. Internal management is philosophically attractive. External management is imitative of the Americans and expensive. The squeeze method is at least as effective as the others.

It was noted that in Bob’s equation, Z represented a number of personnel and not just physicians. It didn’t seem to make sense to reduce the number of physicians entering the profession, as this was likely to be a strategy which entailed fighting more battles. Bob’s response was that it is essential to do this with physicians, as nurses are easier to get rid of once trained. Overall, it is better to start on the supply side. The problem with physicians is that it is difficult to reduce the supply through training fewer because the trainers are powerful interests. For example, dental schools have downsized, but although medical associations have long been uneasy over the entry size to medical schools, they were not downsized until around 1992 because of the opposition of the medical faculties. That there was to be a problem with an emerging surplus of physicians was seen as early as 1975, when the immigration laws were changed to reduce the inflow of foreign physicians, but educators fought decreased class size for 20 years with questionable research.

A question was asked about health human resources planning and the appearance of conflict of interest for nurses when claims were made that supply should be increased. It was commented that outcomes research should help to decrease the conflict of interest by shedding light on whether the issues were about job protection or the health of the population (health care quality assurance). Bob’s response was that outcomes research wouldn’t help because it’s not a question of either job protection or population health. There always is job protection, but it may have a population health perspective. Nurses are involved in job protection but have also serious questions about outcomes that need to be answered. He is in favour of outcomes research, but it is true that good evidence of interventions with a positive impact will get lost or go unnoticed, if it is politically not palatable. If the outcome is positive and those who do it are powerful, the idea will be implemented. If the outcome is neutral and the research was promoted by the powerful, the idea will still be implemented. If the outcome is damaging, the research may even stop, except where drug companies are concerned. Good evidence of no gain with a particular intervention will not reduce the intervention if it is a politically potent intervention. Outcomes research tends not to affect policy. The problem has to do with who is the client for the outcomes research? Who will apply it?
It was commented that Bob had not discussed the impact of technology as a driver of costs. This could be important as Canada has had policies in place to restrict technology to decrease cost, and the UK had gone even further. How does technology affect \( P \) and \( Q \) in the equation - it would come in at \( P \)? The response was that technology is not a driver. We are getting more technology but it is not driving the system per se, it is the range of application which drives the system. The fact that technology increases worldwide but the costs are different in different jurisdictions shows that it does not drive costs - a logical mistake by Fuchs and Newhouse. What does drive costs are the characteristics of systems that lead to different uptake of technologies. The key problems with the technology is that it's front-end-loaded; it can cost millions to bring to the market, so therefore companies need to sell it so they force it on us. Some countries are more successful than others in resisting but the international grouping of companies means this is going to get more difficult. For example, the National Institute of Health budget supports technology advancement. This is the American disease - to convert a political question into a technological/scientific question so that it is believed that the value of human life can be technically determined. The key issue is the structural response.
Morning Panel

Overservicing
If Doctors Were Free, Would We Always Want More?

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Presented, in part, at the Second Invitational Trilateral Physician Workforce Conference,
It is hard to resist more of an apparently good thing, whatever the cost. The physician workforce in the United States is a case in point. Compared to other large developed countries, the U.S. is notable for its high number of physicians per capita, particularly specialists. At first glance, this abundance of doctors should be no more of a societal problem than a bumper crop of corn. Even if a high physician supply is partly responsible for the equally high per capita medical care costs in the U.S., what better way for an affluent nation to spend its loose change? The public has a thirst for more medical care to address an ever greater range of perceived human ills. The underlying assumption is that more physicians are always better for a population - greater access to preventive services, a quicker response to acute illness, and more consistent care of chronic illness. But this assertion remains largely unstudied. Consider two fictional metropolises in the midwest:

Moredoc and Fewerdoc are nearly identical twin cities divided by a river and a twist of fate. Their health care economies are predominately fee-for-service with one important difference: Ten years ago, Moredoc was bequeathed a fantastically large legacy with the stipulation that it only be used to encourage the recruitment and retention of more physicians. New physicians were provided with relocation bonuses and then guaranteed an income greater than the national median of their specialty. Physicians could not charge for their services. Physician eligibility for the program continued as long as they were fully engaged in the usual activities of their specialty. Today the citizens of Moredoc consider themselves truly blessed with an abundant supply of physicians.

On the other side of the river are the unhappy residents of Fewerdoc with half as many physicians per capita. Although it once considered itself a perfectly good place to live and work, the Fewerdoc population now sees itself as medically disenfranchised.

Stranger than fiction is the actual variation in physician supply across cities and regions in the U.S. The per capita number of clinically active physicians ranges, not two-fold, but almost four-fold. Without obvious benefits, San Francisco has almost twice as many physicians as Wichita KS (282 vs. 148 per 100,000). Three other regions have even more physicians per capita: White Plains, NY (334 per 100,000), Hackensack, NJ (300 per 100,000), and Royal Oaks, MI (289 per 100,000). Nor is Wichita unique for its modest supply. Other regions with similarly sized workforces include Las Vegas NV (149 per 100,000), Dayton OH (148 per 100,000), and Winston-Salem NC (147 per 100,000). Putting costs aside, do we know which region is better off?
Understanding the consequences of increasing physician supply for population outcomes is critical if we are to know how many physicians we need or want. Many fear that recent efforts to constrain the growth in physician supply in an effort to curb costs will lead to rationing medical care and will harm patients.\textsuperscript{3, 4}

What if a higher per capita workforce, however, causes more harm than good? Then, constraining the supply of the specialists is not rationing but improving medical care.

This paper will tackle the subject of physician supply and population effects in three parts. First, we will briefly discuss a theoretical framework for approaching the question, "If doctors were free, would we always want more?" Then, we will present the sparse literature that has tried to directly or indirectly answer this question. Finally and most importantly, we will discuss the implications of these studies that will guide future research directed toward understanding the marginal benefits of a greater physician supply.

THE QUESTION'S THEORETICAL FRAMEWORK

The relationship between physician supply and net patient benefits is almost certainly described by the law of diminishing returns. (Figure 1) The curve is initially steep as the population receives basic preventive measures and as those with untreated disease receive care. In this region of the curve, a greater physician supply should lead to a population's markedly improved functional status and greater satisfaction with health and medical care. As the physician supply increases, however, the population benefits may be less apparent. In the relatively flat portion of the curve, increased supply leads to minimal or no improvements in health. Instead of helping those still in need of basic medical care, utilization may increase for those already receiving ample services. If utilization continues to increase with physician supply, then benefits may eventually be outweighed by the harms of needless medical care - too many screening tests of dubious benefit\textsuperscript{5} and excessive surgery for minor ills.\textsuperscript{6}

While the curve in Figure 1 represents the general case, it should be noted that the shape and slope of the curve will differ for different specialties and populations. The change in net benefits (or the slope of the curve) should be greater for indigent populations, as well as for the elderly, for pregnant women, or for the chronically ill. Across similar
populations, the incremental benefits of a greater dermatologist supply are likely to differ from a greater supply of cardiovascular surgeons.

Characterizing the physician supply-benefit curve for specific specialties and populations will be difficult because of the other variables that can alter the effectiveness of the physician supply or the health outcomes of the population under study. (Figure 2) Potential confounders of measures of physician supply include the organization of care, the productivity of the physicians and the use of mid-level providers. Potential confounders of patient utilization and outcomes include both organizational and patient characteristics.

**WHAT DO PAST STUDIES TELL US ABOUT THE POPULATION EFFECTS OF VARYING PHYSICIAN SUPPLY?**

In the past twenty years, only three studies have specifically examined population outcomes associated with varying physician supply. (Table I) Nesbitt and Allen looked at neonatal outcomes of pregnant women and found that a greater supply of obstetrical services was associated with lower rates of prematurity and neonatal deaths. Although these findings may represent a causal relationship, differences in population characteristics may have confounded the results of the study. Krakauer, for example, did not detect differences in Medicare mortality by physician supply across Health Care Service Areas. The limited scope of these studies is primarily useful in understanding the magnitude of future research challenges.

Other investigators have examined the relationship between physician supply and utilization and have found conflicting results. Welch and his colleagues, examining Medicare utilization in MSAs, found that areas with a higher proportion of primary care physicians had lower admission and expenditures rates for outpatient services. The number of "patient care physicians" per capita appeared to have no influence. Mark observed lower Part B reimbursements in urban counties with high supplies of family practitioners and general internists. Escarce concluded that greater surgery rates in high supply areas reflected increased rates of initial contact with surgeons. Krakauer used Health Care Service Areas as devised by the National Center for Health Statistics (County aggregates based upon Medicare utilization) and found lower Medicare admission rates for Ambulatory Care Sensitive Conditions in areas with a high physician supply, but only for those areas already falling within the lowest supply decile. In the most recent study,
Grumbach and colleagues studied office visit rates and use of preventative services in urban California Primary Care Service Areas. No association was noted between primary physician supply and utilization by those age 18-64 years.\textsuperscript{13}

Although definitive studies linking physician supply and outcomes are lacking, a growing body of literature suggests that more medical care is not necessarily better for patients. In a recent VA Cooperative Study,\textsuperscript{14} for example, patients with diabetes, chronic obstructive pulmonary disease and congestive heart failure were randomized to either usual care or early and frequent primary care. Yet the rate of readmission, the study's primary outcome, was significantly higher for recipients of shorter revisit intervals. Although not reaching statistical significance, mortality was higher in the group who received the primary care intervention. Several studies have also failed to find better outcomes with higher rates of invasive cardiovascular interventions.\textsuperscript{15-18} One recent study, however, found that the higher rates of intervention in Texas were associated with both higher mortality and worse functional outcomes than in New York.\textsuperscript{19} These findings could plausibly fit the law of diminishing marginal returns: some populations are on the flat of the curve, but others are experiencing net harm from rates of intervention where the risks exceed the benefits.

\textbf{LESSONS FROM THE PAST THAT WILL ENHANCE FUTURE RESEARCH}

Studies that have examined the relationship between physician supply and outcomes point to the difficulties in measuring either. What can we learn from these previous efforts? Attention should be focused on five areas -- research design, the units of observation, measurement of physician supply, covariates that could confound analyses, and expanded measures of outcomes. (Table 2)

\textit{Research design}

Randomized clinical trials of differing levels of physician supply will provide the most convincing evidence of the effectiveness of the physician workforce. When these trials are not feasible, longitudinal cohort studies still offer substantial advantages in inference of causation over the cross-sectional design used in all of the studies that we reviewed. Although a relatively efficient approach to hypothesis generation, cross-sectional studies rarely lead to certainty about causation.
The units of observation

If physician supply is our policy interest, then the attribution of group "exposure" to individuals must follow. By definition, a "physician supply" is a measure of physicians in aggregate and is logically expressed as a ratio to the population served. Though ecologic studies are frequently maligned, in this instance there is a clear "logic to the ecologic" if the supply with minimal heterogeneity is matched to the population. With some care, this can occur within a geographic area or a practice. (Table 3) With the exception of Grumbach's work, all of the research previously discussed used large and internally heterogeneous geographic units.

At one end of the geographic hierarchy is the entire U.S. Though this unit of observation is the one most commonly used for workforce studies, it has important weaknesses. Measures of the overall physician supply in a country of 260 million people have little meaning for any particular patient or health care provider. Primary care is localized to within fifteen minutes for most patients and tertiary care centers serve regional, but rarely national, populations.

Smaller geopolitical units have their own limitations. States and counties are attractive to health care policy makers because many health care programs in the U.S. are administered at these levels. A closer look, however, shows that they suffer from the same extreme internal heterogeneity as the overall U.S. Since their boundaries are ignored by patients seeking medical care, physician numbers are mismatched to the population; the resulting ratios have limited meaning.

An alternate approach that we have used in the Dartmouth Atlas of Health Care project is to define utilization-based health care market areas using Medicare inpatient (Part A) data. ZIP Codes are the fundamental geographic units and are assigned to hospitals on the basis of patient travel for hospital care. Since physicians tend to be located close to hospitals, these hospital service areas (HSAs; N=3,436) are useful for measuring medical care resources at a community level including primary care and some specialty care physicians. However, physician specialties with regionalized practices require tertiary health care markets. HSAs are further aggregated into Hospital Referral Regions (HRRs; N=306) on the basis of travel for major cardiac and neurosurgical procedures. Some patients, of course, still choose to travel beyond their own service area. We adjust the per capita physician measures for this travel, in proportion to the out-of
area inpatient utilization. Further adjustments are made in the measures of specialty supply for population differences in age-sex across areas using data from the Ambulatory Medical Care Survey.

A further advance in measuring physician supply would be physician service areas constructed using Medicare physician claims (Part B) data. Defining and characterizing these areas is one of the objectives of the Dartmouth Atlas group during the next year. The validity of areas defined with utilization patterns of the elderly to younger populations will be tested using Medicaid data in selected states. Beyond our current horizon is physician service areas defined using all payor data. That would require a data set, at present imaginary, that sampled utilization for all specialties, ages, and areas. Currently, health care markets defined using Medicare utilization are the best available for studies interested in regional supply for the entire U.S.

An entirely different approach would be to define populations based on health care organizations. This is difficult in fee-for-service or IPA environments, but conceptually simple in HMOs where both the population and number of physicians may be readily ascertained. An observational study would require settings where the panel sized varied; this might only be achieved by observing across a number of HMOs. More interesting would be to randomize physician panels to different patient population sizes.

Analyses will also have greater validity when there is congruence in the supply numerator, the population denominator, and population utilization. A study of neonatologists, for example, would logically use newborns as its supply denominator. A meaningful generalist supply for children must delete the internists and discount the family practitioners.

Measures of supply

It almost goes without saying that workforce investigators desire data that more accurately identifies the practice location, specialty, and activities of providers. For small areas or individual specialties, accurate information data may be obtained from state licensing boards, specialty organizations, or even the phone book. The AMA and AOA Masterfiles remain the sole sources of data for studies of large geographic areas. Release of data with sufficient details for research has not always been easy in the past and is never inexpensive. These organizations could facilitate workforce research by inviting
investigators to participate in the design of data collection and the guidelines for data release.

Confounders

The importance of understanding factors that could modify the association between the supply of physicians and utilization is well exemplified with physician productivity. Simple physician-to-population ratios are crude measures. The productivity of physicians is heterogeneous, even within each specialty. Surgeons who are self-employed, for example, perform 30% more surgical procedures per week than those who are employees or independent contractors. Women physicians, on average, work 11% fewer hours per week than their male counterparts. The physician supply may itself influence productivity as the number of patients available to each physician decreases. The left-hand chart in Figure 3 shows that there is a negative association \( R^2 = 0.39 \) between the supply of office-based physicians and the mean weekly number of office visits per physician at a Census Region level. But this decline in productivity is not great enough to outweigh the activity associated with more physicians delivering care. The chart on the right-side shows that the office visits per capita still increases with a higher per capita workforce \( R^2 = 0.66 \).

The adjustment of clinicians per capita should also account for mid-level providers. This reservoir of clinician supply might be called the "fourth compartment" (the other three are federal, non-federal, and HMO physicians; See Tarlov) and rarely receives its due because it is presently difficult to measure. The dimensions of this fourth compartment should be systematically measured; then the relation between this clinician supply and the three physician compartments can be analyzed.

What about the organization and financing of health care? Underservice will still occur, even in areas of high physician supply, because of structural barriers to care. Medical care is less available to those with inadequate insurance, cultural differences, and for vulnerable or segregated populations - migrant farm workers and those who are homeless or incarcerated. Managed care, as previously discussed, can influence utilization not only through low physician staffing levels, but also through a combination of limiting other resources and rewarding physicians who contain costs. Providers of health care with constrained employment of physicians should be closely examined to understand how the organization of health care alters physician productivity and patient outcomes. Staff and
group-model HMOs remain valuable natural experiments for studying the provision of medical care with relatively few physicians.

Non-experimental designs must also account for possible confounding by differences in the characteristics of the patient populations across different levels of physician supply. Although age, sex, and race are often available from administrative databases, future studies should build on the model of the Medical Outcomes Study and incorporate baseline measures of patient characteristics such as severity of illness, level of comorbidity and functional status.36

**Measures of outcomes**

Although mortality remains an important and incompletely studied outcome, it is useful only for certain specialties. We must look beyond this single measure to other outcomes that are valued by patients. Since this data is usually not found in national data sets, some studies will need to be restricted to specialties or practice settings where more detailed clinical information can be collected.

**TWO EXAMPLES USING SUGGESTED METHODS**

Managed care offers favorable settings for future studies of the effectiveness of physician supply. The physician-to-population ratio is clear and could be adjusted for patient-mix, determined through patient surveys. Cohorts may be followed over time with measurement of utilization and outcomes including functional health status and patient satisfaction. While it may be difficult to find a large enough range of panel sizes that are similar in other respects, an alternative is to randomize panels within a health care plan to varying sizes. Managed care plans should be enthusiastic participants in such a study since the results would assist them in planning clinician staffing levels.

In our current work, we have chosen to focus upon a specific specialty, neonatologists, where the intervening mechanisms of the relationship between neonatologist supply and newborn outcomes can be more completely understood. This study, conducted with funding from the Robert Wood Johnson Foundation, was stimulated by the four-fold growth in neonatologists, from 1.4 in 1981 to 5.9 per ten thousand live births in 1996, or one neonatologist for every 11 extremely low birthweight infants (< 1,000 gms)37.
Although the efficacy of neonatal intensive care in reducing mortality and morbidity in very premature or ill infants is well established, it is not known if broadening these services to infants with less severe problems is helpful or harmful. We will study two cohorts -- all newborns in the United States (1995) and in New York State (1996). The NY State dataset includes particularly detailed information about the infant's medical treatment. Both datasets include extensive individual information on the newborn's health status (e.g. birthweight, gestational age, complications) and subsequent outcomes (death within one year of birth, readmissions).

The study has adequate power to detect even a small increase in NICU use rates and infant mortality rates across regions of differing capacities. We will use traditional small area analytic methods to determine the local per-capita supply of neonatal resources (NICU bed supply, neonatal care physicians) and general pediatric clinicians. The detailed information on the birth records will allow excellent adjustment for differences across regions in population risks. In addition to the direct tests of the specific hypotheses, the small area analysis will provide the first comprehensive national information on regional variations on resources for the care of newborns.

**But doctors are not free!**

We have chosen to emphasize research concerned with the effectiveness, not the efficiency, of the physician supply. Having made the point that there may be limits to physician benefits aside from costs, we should note that the resources associated with these benefits are likely to be linked by a simple relationship: As the supply of physicians increases the cost per marginal net benefit will increase more and more. At the peak of the physician supply-patient benefit curve, costs become infinite. Beyond the peak exists an irrational domain where costs per benefit cannot be defined -- there are no net benefits. Presumably, this is a region of physician supply where society would benefit if physicians were paid not to practice!

**Closing thoughts**

The conviction that more physicians for a population is always helpful and never harmful is ingrained in patients and physicians, alike. The lament of two physicians is a reminder of the medical profession's belief in its unequivocal effectiveness:
"...troubling to me ... as a neurologist ... is the whole issue of the primary care physician gatekeeper. I cringe when somebody says we have an oversupply of specialists... How can you have an oversupply of a good thing?" 44

"...for many people it is difficult to understand why too many doctors is bad...How can we have too many professionals dedicated to relieving pain and suffering?" 45

To our question, "If doctors were free, would we always want more?," the residents of our two fictitious cities, Moredoc and Fewerdoc, would join these physicians in responding with a resounding "yes!" But, the effectiveness of a physician supply should be examined no less thoroughly than that of a new treatment. Effectiveness, or the limits thereof of medical care, can be understood only through systematic study, not through assertions of "common sense" or anecdote. Our first step is to recognize that the answer to the question is not presently known. The greater challenge is to generate the evidence necessary to understand when a constrained physician supply leads to harm and when it leads to improved patient outcomes.
<table>
<thead>
<tr>
<th>Author</th>
<th>(study date)</th>
<th>Design</th>
<th>Population</th>
<th>Units of observation</th>
<th>Measure of supply</th>
<th>Key findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nesbitt</td>
<td>(1986)</td>
<td>Cross-sectional</td>
<td>Pregnant women in rural WA State</td>
<td>Hospital service areas</td>
<td>Physicians providing OB care</td>
<td>Lower supply associated with higher proportion of complicated and premature births.</td>
</tr>
<tr>
<td>Escarce</td>
<td>(1986)</td>
<td>Cross-sectional</td>
<td>Medicare</td>
<td>MSAs</td>
<td>Surgical specialties</td>
<td>Increased supply correlated with higher rates of initial contact.</td>
</tr>
<tr>
<td>Welch</td>
<td>(1989)</td>
<td>Cross-sectional</td>
<td>Medicare</td>
<td>MSAs</td>
<td>Patient care MDs; % primary care</td>
<td>Overall supply not correlated with admissions or outpatient payments; proportion of primary care MDs negatively correlated with same.</td>
</tr>
<tr>
<td>Krakauer</td>
<td>(1992)</td>
<td>Cross-sectional</td>
<td>Medicare</td>
<td>Health Care Service Areas (2)</td>
<td>Multiple measures</td>
<td>Reduction of admission rates for ACS (3) conditions observed with a greater supply only within lowest decile of supply. Slight effects were noted in the higher deciles of supply. No effect on mortality.</td>
</tr>
<tr>
<td>Mark</td>
<td>(1992)</td>
<td>Cross-sectional</td>
<td>Medicare</td>
<td>Urban counties</td>
<td>FP, IM, non-primary care per capita</td>
<td>Higher supply of family practitioners and generalist internists associated with lower Part B costs per beneficiaries; higher supply of non-primary care MDs associated with higher reimbursements.</td>
</tr>
<tr>
<td>Grumbach</td>
<td>(1993,94)</td>
<td>Cross-sectional</td>
<td>Age 18-64 yrs in urban CA</td>
<td>Primary Care Service Areas (4)</td>
<td>Primary care MDs per capita</td>
<td>Supply not correlated with office visits or % preventative services received.</td>
</tr>
</tbody>
</table>

Notes:
(1) Restricted to past 20 years.
(2) County aggregates based upon Medicare hospitalizations.
(3) Ambulatory care sensitive conditions
(4) Neighborhoods reflecting residential trade patterns, topography, and demographic characteristics.
Table 2. Suggested methodologic improvements in research analyzing physician supply - patient benefits.

<table>
<thead>
<tr>
<th>Methodologic issue</th>
<th>Study Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Research design</strong></td>
<td><strong>Health care market-based (geographic areas)</strong></td>
</tr>
<tr>
<td>Cross-sectional designs rarely establish causation.</td>
<td>Use cohort designs whenever feasible. Take advantage of natural experiments.</td>
</tr>
<tr>
<td><strong>Units of observation</strong></td>
<td>Use cohort or experimental designs if feasible (e.g. experimentally manipulate practice panel size).</td>
</tr>
<tr>
<td>Supply should accurately match the population under study.</td>
<td>Develop physician service areas for U.S. using Part B Medicare data. Use all payor data for regions where incorporate all payor utilization data.</td>
</tr>
<tr>
<td>Analyses biased by mismatching of supply, utilization, and outcomes.</td>
<td>Identify managed care settings with discrete physician-population groups (e.g. staff or group model HMOs).</td>
</tr>
<tr>
<td><strong>Measures of supply</strong></td>
<td>Measure out-of-plan use.</td>
</tr>
<tr>
<td>Current physician data is not always accurate.</td>
<td>Further develop physician Masterfiles with input from research communities. Validate non-AMA, AOA data sources for regional studies.</td>
</tr>
<tr>
<td><strong>Confounders</strong></td>
<td>Improved data sets of mid-level providers. Analyze variation in physician productivity.</td>
</tr>
<tr>
<td>Physician clinical activity is influenced by non-patient factors.</td>
<td>Investigate the role of other providers. Study settings with low physician staffing.</td>
</tr>
<tr>
<td><strong>Measures of outcomes</strong></td>
<td>Measure patient characteristics through surveys. Use wider range of data from administrative data sets (e.g. outpatient utilization, pharmacy).</td>
</tr>
<tr>
<td>Mortality is an insensitive outcome measure.</td>
<td>Expand use of administrative data to measure morbidity. Survey populations to assess functional health status and satisfaction.</td>
</tr>
</tbody>
</table>
Table 3. Possible units of observation for measuring supply in workforce analyses.

<table>
<thead>
<tr>
<th>Units of observation</th>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Geopolitical areas</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>US</td>
<td>Simple; easy to compare with other countries.</td>
<td>Medical care is localized and physicians are unevenly distributed.</td>
</tr>
<tr>
<td>States</td>
<td>Important geopolitical units for health policy development and implementation.</td>
<td>Physicians unevenly distributed. Not health care markets: physicians serve populations in other states.</td>
</tr>
<tr>
<td>Counties</td>
<td>Population and medical care data is highly available.</td>
<td>Not health care markets: physicians serve populations in other counties.</td>
</tr>
<tr>
<td><strong>Health care market-based</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hospital Service Areas -</td>
<td>Functioning health markets for secondary care. Better matching of physician supply and population.</td>
<td>Patient travel may vary for different specialties. Travel for care by non-Medicare patients may be different than for Medicare.</td>
</tr>
<tr>
<td>- defined by Medicare patient travel for inpatient care. (1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physician Service Areas (2)</td>
<td>Physician health markets defined by patient utilization of physicians.</td>
<td>Doesn't exist, yet; Medicare Part B is the only physician utilization data covering the entire US.</td>
</tr>
<tr>
<td>Practice-based</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physician or Practice Panels</td>
<td>Discrete units of physician - patients.</td>
<td>May be biased by high turnover rates. Most physicians do not have panels of patients.</td>
</tr>
</tbody>
</table>

Notes:
(1) Developed for The Dartmouth Atlas of Health Care (Ref 24). Aggregations of ZIP Codes based upon the plurality of travel for Medicare hospitalizations.
(2) Proposed
Table 4. Possible clinical settings to test the relationship between physician supply and utilization and outcomes.

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Design</th>
<th>Units of Observation</th>
<th>Supply</th>
<th>Utilization</th>
<th>Selected Covariates</th>
<th>Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health care market-based</td>
<td>Retrospective cohorts</td>
<td>Neonatal service areas</td>
<td>Neonatologists, pediatricians, and family practitioners per births; presence of intensive care nurseries</td>
<td>Admission to intensive care nurseries; ICN days; diagnostic and procedure rates</td>
<td>Birth weight; race/ethnicity; parental educational attainment; presence of perinatologist</td>
<td>Neonatal mortality; infant mortality; readmission rates</td>
</tr>
<tr>
<td>Practice-based</td>
<td>Randomized trial or retrospective cohorts</td>
<td>Primary care physician panel (in observational or experimental study)</td>
<td>Patients per primary care physician panel (in observational or experimental study)</td>
<td>Office visits and admission rates per capita; office revisit rates; utilization of preventative services.</td>
<td>Random assignment of panels will minimize confounders</td>
<td>Functional status and satisfaction of survey sample.</td>
</tr>
</tbody>
</table>
Figure 1. Hypothesized physician supply - patient benefit curve. The line represents a curve of diminishing returns. Beyond the relatively flat part of the curve is a region where a further increase in physician supply leads to patient harm.
Figure 2. Theoretical relationship between physician supply and health outcomes.

Potential Confounders:

Of supply measures
- Organization of care
- Productivity
- Mid-level providers

Of utilization and outcome measures
- Organization of care
- Population characteristics

Physicians per capita

Adjusted clinicians per capita

Price of medical services

Utilization of services per capita

Expenditures per capita

Altered population outcomes
Figure 3. Physician supply, productivity, and clinical activity for office-based physicians by Census region, 1994.

Notes: Data adapted from AMA data (see references 29 and 31). Only office-based non-federal physicians included. Lines represent linear regression. Symbol key: NE-New England; M ATL-Mid Atlantic; S ATL-South Atlantic; ENC-East North Central; WNC-West North Central; ESC-East South Central; WSC-West South Central; PAC-Pacific.
References


Overservicing.

Klim McPherson
Professor of Public Health Epidemiology
London School of Hygiene and Tropical Medicine

Vancouver November 14th, 1997

Introduction.

Overprovision of health care is a crucial issue in all health care systems. Since they are expensive, and inexorably seem to consume greater proportions of GNP, it is natural to ask for increasingly demanding justifications for what is provided. The designation of overprovision is complex, however; while it clearly must include care for which no benefit (for the patient) can be expected, it might also include a wide spectrum of care which is merely inefficient relative to other use of scarce resources. Thus overprovision includes care which should not be provided under some strategic rationing policy.

A problem is that each clinical decision is taken in a context of an assessment of individual balances of benefit and risk. This is generally done in a situation of a chronic asymmetry of information, constrained by resources and often with real or implied urgency. These decisions have had to be made for decades under a model of sophisticated biological understanding, strong professional hegemony and a dominant belief in a medical model of disease. What we observe is the evolution of very different medical practice styles. Since measuring (and comparing) outcomes for many treatments is generally difficult and often unreliable, and anyway often disparaged and considered unimportant, practice styles have evolved, under this asymmetry, in circumstances of crucial and real information deficit about the actual benefits and risks associated with particular decisions. (See Figure 1 below.)

Thus knowing about the attributable benefits and risks of treatment choices (including no treatment options where relevant) for individual patients is generally much more difficult than is commonly realised. It is far too easy to be glib and reassuring when that is what ill patients and their advisors
Figure 1

CHOLECYSTECTOMY

PER / 100,000 PA

Q
N.B.
NEWF NC
W
B

E & W CAN USA WEST MIDLANDS OXFORD GPs MAINE NORWAY
75 75 75 75-77 75-77 73 77
generally prefer. But the true uncertainties may actually be profound, even if their extent is not suspected. Certainly many well established treatments have been found to be wanting when assessed rigorously.

**Practice variations**

Thus, as would be expected, practice in differing organisational structures, even if supply and need are constant, can be shown to be very different in highly predictable ways. Fee-for-service providers with unrestricted third party insurers provide more care while constrained or capped levels of supply leads to lower levels of provision and managed care - with second opinions and greater resource to guidelines - has the explicit objective of containing costs via controlling provision. It is much more important to control hospital admission rates than expenditures per admission in achieving such an objective. Since per capita expenditures are the product of average cost per case and admissions per capita, it is not difficult to demonstrate that where there is discretion on admission itself it is essentially this that determines costs. (See Figure 2 below.)

Best estimates suggest that around 10% of hospital admissions constitute care which is determined by unambiguous medical need. Some interventions do in fact only vary with morbidity rates, because there is very little discretion or uncertainty associated with treatment choices. There are other instances where elements of medical care may vary enormously, but the cost and outcome variations are minimal, which nonetheless might represent over-provision. The general rule is that most hospital admissions are discretionary, to the extent that systematic two to three fold variations in standardised admission rates are seen between neighbouring hospital market areas. These have implications on costs which are largely obvious and on health gain which are largely poorly understood, because the micro level effectiveness has not been established. (See Figures 3 and 4 below.)
Figure 2

Hysterectomy

Standardised Bed Days Ratio

Standardised Incidence Ratio

Hysterectomy

Standardised Bed Days Ratio

Standardised Length of Stay Ratio
Figure 3

Variation in per Capita Incidence of Hospitalization for Cases Classified by Diagnosis-Related Group (DRG) among 30 Hospital Market Areas in Maine, 1980-1982.*

<table>
<thead>
<tr>
<th>Variation Scale</th>
<th>No. of DRGs</th>
<th>SCV</th>
<th>Coefficient of Variation</th>
<th>Ratio of Rates</th>
<th>Percentage of Cases (Accum.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>3</td>
<td>17</td>
<td>0.16</td>
<td>2.3 1.3</td>
<td>1.1 (1.1)</td>
</tr>
<tr>
<td>Moderate</td>
<td>24</td>
<td>39</td>
<td>0.24</td>
<td>2.8 1.4</td>
<td>8.9 (10.1)</td>
</tr>
<tr>
<td>High</td>
<td>135</td>
<td>90</td>
<td>0.34</td>
<td>4.6 1.6</td>
<td>42.3 (52.4)</td>
</tr>
<tr>
<td>Very high I</td>
<td>149</td>
<td>190</td>
<td>0.49</td>
<td>7.4 1.9</td>
<td>31.7 (84.1)</td>
</tr>
<tr>
<td>Very high II</td>
<td>134</td>
<td>506</td>
<td>0.70</td>
<td>12.1 2.8</td>
<td>15.9 (100.0)</td>
</tr>
</tbody>
</table>

*Variation statistics are weighted averages. Number of cases = 428,056. See text for explanation of variation scale and SCV (systematic component of variation). Accum. denotes accumulated.

Figure 4

Relationship between systemic variation, an estimate of the ratio of rates between extreme districts (fold), and typical surgical operation in the eight bands.

<table>
<thead>
<tr>
<th>Amount of Variation</th>
<th>SCV Range</th>
<th>Approximate Fold Range</th>
<th>Typical Surgical Procedure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very Low</td>
<td>&lt;1.8</td>
<td>&lt;1.5</td>
<td>Hernia Repair</td>
</tr>
<tr>
<td>Low</td>
<td>1.8-3.2</td>
<td>2</td>
<td>Hysterectomy</td>
</tr>
<tr>
<td>Medium</td>
<td>3.2-5.4</td>
<td>2.5</td>
<td>Hip Replacement</td>
</tr>
<tr>
<td>High</td>
<td>5.4-10</td>
<td>3</td>
<td>Tonsillectomy</td>
</tr>
<tr>
<td>Very High I</td>
<td>10-20</td>
<td>4</td>
<td>Haemorrhoidectomy</td>
</tr>
<tr>
<td>Very High II</td>
<td>20-30</td>
<td>7</td>
<td>Adenoidectomy</td>
</tr>
<tr>
<td>Very High III</td>
<td>30-50</td>
<td>10</td>
<td>Removal of tooth</td>
</tr>
<tr>
<td>Very High IV</td>
<td>50+</td>
<td>20</td>
<td>Carotid Endarterectomy</td>
</tr>
</tbody>
</table>
**Figure 5a**

Percentage of the 32 selected surgical procedures, categorised by grouped SCV

<table>
<thead>
<tr>
<th>SCV</th>
<th>No. of Cases</th>
<th>Percent of all Surgical admissions</th>
<th>Cumulative %</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;1.8</td>
<td>78201</td>
<td>2.57</td>
<td>2.57</td>
</tr>
<tr>
<td>1.8 to 3.2</td>
<td>136450</td>
<td>4.46</td>
<td>7.05</td>
</tr>
<tr>
<td>3.2 to 5.4</td>
<td>93831</td>
<td>3.08</td>
<td>10.13</td>
</tr>
<tr>
<td>5.4 to 10</td>
<td>475510</td>
<td>15.62</td>
<td>25.75</td>
</tr>
<tr>
<td>10 to 20</td>
<td>90218</td>
<td>2.96</td>
<td>28.71</td>
</tr>
<tr>
<td>20 to 30</td>
<td>47112</td>
<td>1.55</td>
<td>30.26</td>
</tr>
<tr>
<td>30 to 50</td>
<td>94076</td>
<td>3.09</td>
<td>33.35</td>
</tr>
<tr>
<td>50+</td>
<td>27805</td>
<td>0.91</td>
<td>34.27</td>
</tr>
<tr>
<td>Total</td>
<td>1043283</td>
<td>34.27</td>
<td></td>
</tr>
</tbody>
</table>

The total number of surgical procedures on which the percents are based is 3,043,926.

**Figure 5b**

Percentage of admissions for the 45 selected hospital admissions, categorised by grouped SCV.

<table>
<thead>
<tr>
<th>SCV</th>
<th>No. of Cases</th>
<th>Percent of all Hospital admissions</th>
<th>Cumulative %</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;1.8</td>
<td>0</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>1.8 to 3.2</td>
<td>25935</td>
<td>0.44</td>
<td>0.44</td>
</tr>
<tr>
<td>3.2 to 5.4</td>
<td>1078133</td>
<td>18.37</td>
<td>18.81</td>
</tr>
<tr>
<td>5.4 to 10</td>
<td>1626176</td>
<td>27.70</td>
<td>46.51</td>
</tr>
<tr>
<td>10 to 20</td>
<td>1554083</td>
<td>26.99</td>
<td>73.50</td>
</tr>
<tr>
<td>20 to 30</td>
<td>166764</td>
<td>2.84</td>
<td>76.34</td>
</tr>
<tr>
<td>30 to 50</td>
<td>235413</td>
<td>4.01</td>
<td>80.35</td>
</tr>
<tr>
<td>50+</td>
<td>0</td>
<td>0.00</td>
<td>80.35</td>
</tr>
<tr>
<td>Total</td>
<td>4716504</td>
<td>80.35</td>
<td></td>
</tr>
</tbody>
</table>
However, frank overprovision is rare, because, in the end, if the appropriate consensus ever existed to define any provision as such, then it would tend not to be provided. Usually there is sufficient noise in the decision-making process to disguise things which might be considered unnecessary as appropriate. What we have instead is indirect evidence for overprovision coming from systematic variation, giving rise to massive differences in provision, which clearly have cost implications but rarely any measurable attributable health gain consequences.

![Figure 6](image)

All research so far, which seeks to compare mortality rates (for example) with hospital use rates, uncovers positive associations rather than negative ones. Clearly since provision itself might be in response to need, and it certainly determines thresholds of use rates, the determination of causal pathways is complex\textsuperscript{13}. However the evidence for relatively high levels of hospital provision having a beneficial effect on health is restricted to a few specific procedures, mostly very rare. Of course this
might be a function of insensitive measures, but *prima facie* the empirical evidence supports the notion of decreasing aggregate benefit associated with increasing expenditures above the norm.

**Figure 7**

*Net effect of an increasing rate of hospitalization*

NOTE. As hospitalizations are increased, inevitably a point will be reached where the net effect is harmful to patients. This figure represents alternative interpretations of where that point may be. The first curve shows that the marginal benefits plateau at point A and decline into a zone where the iatrogenic effects of hospital care exceed the benefits. The second curve shows a much broader zone of decreasing but still positive utility extending past point A to point B. The present state of clinical knowledge as exemplified by the practice patterns of New Haven and Boston does not distinguish between these two possibilities.
Intensive Care

A very interesting, and seemingly paradoxical, example comes from the provision of (adult in this case) intensive care. Intensive care is clearly highly technical and labour intensive care for the acutely sick\textsuperscript{15}. Hardly any of it has been subjected to randomised trials to examine the attributable effect of this extra expenditure and provision and yet there are, in common with most other kinds of hospital admission, apparently large variations in use rates.

Figure 8

Severity distribution of APACHE II scores on patients admitted to the ICU.

- USA - 5,030 patients, 13 hospitals
- NZ - 1,005 patients, 2 hospitals
- UK - 5,327 patients, 18 hospitals
It epitomises much of health care as the need for such care is deemed to be self evident. Some key workers in the field have particularly singled out intensive care as being so self evidently beneficial that randomised trials might be unethical. However herein lies the central problem with health care, that assumptions are made on grounds of intrinsic plausibility without the necessary empirical validation of efficacy. As a case study in overservicing, intensive care is illuminating, since in the UK the average cost per day is around 800 pounds.

These data show that in the US the expenditure on intensive care (IC) is more than 1% of GDP while in the UK the figure is more like 0.1%. Since our GDP is lower anyway the per capita expenditure is even lower relatively. In the UK there are serious questions of under-provision of intensive care augmented sometimes by questions of the quality of life associated with the outcome. However, much publicity in the UK is routinely given to the fairly frequent occasions when persons are refused admission to intensive care units because there are no beds or no staff to operate the provision. The clear assumption is that the refusals will give rise to many unnecessary deaths and that the solution is to provide more beds or staff.

### Figure 9

IC costs per person in some countries (1990; HC health care, CAP capita, GDP gross domestic product)

<table>
<thead>
<tr>
<th>COUNTRY</th>
<th>HC % GDP</th>
<th>GDP £/CAP*</th>
<th>HC £/CAP</th>
<th>IC % HC</th>
<th>IC £/CAP</th>
</tr>
</thead>
<tbody>
<tr>
<td>US</td>
<td>12.4</td>
<td>11634</td>
<td>1442.6</td>
<td>10</td>
<td>144.3</td>
</tr>
<tr>
<td>FRANCE</td>
<td>8.9</td>
<td>11805</td>
<td>1050.1</td>
<td>75</td>
<td>(52.5)**</td>
</tr>
<tr>
<td>N.Z.</td>
<td>7.2</td>
<td>7211</td>
<td>519.2</td>
<td>75</td>
<td>(26.0)**</td>
</tr>
<tr>
<td>JAPAN</td>
<td>6.5</td>
<td>13164</td>
<td>855.7</td>
<td>75</td>
<td>(42.8)**</td>
</tr>
<tr>
<td>U.K.</td>
<td>6.1</td>
<td>9540</td>
<td>581.9</td>
<td>1</td>
<td>5.8</td>
</tr>
</tbody>
</table>

* gross domestic product/person, market prices 1990 (Chew 1992)
** estimated IC costs as 5% health care costs
The first question of interest is what is the relationship between IC bed provision and refusal rate in England, as each extra bed would cost more than a thousand pounds per day in extra staff and equipment. We did a survey of intensive care provision in England in 1993 for the Department of Health of all intensive care units\textsuperscript{17}. We surveyed 234 units and received replies from around 75%.

We asked for estimates of the number of patients who had been refused admission because of a shortage of staff or beds during 1992. When we compared these estimates with the bed provision relative to the catchment population the relationship was very strong. The strongest determinant of refusals by far was the bed provision and even after adjusting for many other aspects of supply, the refusal rate had an odds ratio of around a third when the bed provision was relatively high. Thus, at least as far as refusals were concerned, the strongest determinant does seem to be number of beds per head of catchment population. Very roughly, 1.5 beds per 100,000 population is associated with refusal rates of around 10% while an increase to around 5.25 beds per 100,000 is associated with 4%. Thus, very roughly, a fourfold increase in beds might result in a halving of the refusal rate.
A halving of the refusal rate to 4%, if achieved, would still be regarded as unacceptable, since any refusal to intensive care, if appropriately referred, is still *prima facie* evidence for under-provision. Hence pressure for more beds still would not cease. However, what is the relationship of bed provision with admission rates? Here we seek information on one of the most crucial relationships in
health care provision, that between the supply and the use of services. The broad implicit assumption is that supply is in response to need and use is determined by medical need -- essentially. Nobody believes that if asked, but it is nonetheless assumed at a macro level by policy makers and politicians.

The observed relationship in this study between bed supply and admissions is shown below.

**Figure 11**

Intensive care unit admission & refusal rates (1992): in areas with different bed provision/100,000 population

<table>
<thead>
<tr>
<th>ICU REFUSAL &amp; ADMISSION RATES (1992)</th>
<th>IN AREAS WITH DIFFERENT BED PROVISION PER UNIT POPULATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>refusal rate %</td>
<td>refusal rate</td>
</tr>
<tr>
<td>L low 0.81-1.85, M medium 1.86-2.81, H high 2.82-13.83 beds/100,000 population</td>
<td></td>
</tr>
</tbody>
</table>

And here we can see a really very serious relationship where high bed provision is associated with more than three times as many patients per capita than low bed provision. So to increase beds by fourfold might decrease refusals but would also increase admissions. Of course this is not a very surprising finding, but nonetheless it is indicative of the kind of problem faced in health care. Imagine two communities of 500,000 people, one with 7.35 beds and another with 26.2 beds. The first would, on the above basis, admit 500 patients each year to its intensive care and the second 1700. Assuming again the above refusal rates the number of patients refused admission per annum would be 56 and 71
precisely how we know there is overservicing, because the pressure to increase bed provision is not
assuaged at all by such a dramatic increase in bed provision, in fact it is intensified.

**Figure 12**

Intensive care unit admission & refusal rates (1992) in areas with different bed provision/100,000 population

<table>
<thead>
<tr>
<th>ICU REFUSAL &amp; ADMISSION RATES (1992)</th>
<th>IN AREAS WITH DIFFERENT BED PROVISION PER UNIT POPULATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>refusal rate %</td>
<td>admissions/100,000 pop</td>
</tr>
<tr>
<td>12</td>
<td>350</td>
</tr>
<tr>
<td>10</td>
<td>300</td>
</tr>
<tr>
<td>8</td>
<td>250</td>
</tr>
<tr>
<td>6</td>
<td>200</td>
</tr>
<tr>
<td>4</td>
<td>150</td>
</tr>
<tr>
<td>2</td>
<td>100</td>
</tr>
<tr>
<td>1</td>
<td>50</td>
</tr>
<tr>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

bed provision

L low 0.8-1.85, M medium 1.86-2.81, H high 2.82-13.83 beds/100,000 population

**Figure 13**

Two communities in England of half a million population

<table>
<thead>
<tr>
<th>ICU beds /100,000</th>
<th>Expected admissions per annum</th>
<th>Refusals per annum</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.5</td>
<td>500</td>
<td>56</td>
</tr>
<tr>
<td>5.25</td>
<td>1700</td>
<td>71</td>
</tr>
</tbody>
</table>

'More beds need more beds'
Data from the national part of our study indicated that approximately 73,000 cases were referred to intensive care units in England in one year. We estimate from our data that 80% of these cases were appropriately referred, and that 90-day mortality was 37%. If the relative risks for mortality for refusals compared with admissions were between 1.5 and 2.0, the attributable risks would be 9.9% and 11.6% respectively. Based on the results of our study, the numbers of deaths in 1 year attributable to refusal could therefore lie somewhere between 2,100 and 2,500 per annum for appropriately referred cases. This number of potentially avoidable deaths is in the same order of magnitude as those due to road traffic accidents (but far less than the 138,000 avoidable deaths due to smoking).
Notwithstanding the extremely low level of provision of IC in the UK, which is widely understood, and the observational evidence described above, these data do not indicate any degree of under-provision. What they indicate is a much lower apparent attributable mortality associated with refused admission to ICU, and serious confusion about who should be appropriately referred and serious uncertainty about who should be admitted. Obviously such uncertainty will give rise to overprovision both at the individual patient level and also at the macro provision level. But increasingly, the rational response is to find out more about the role of high dependency beds and about the attributable role of aspects of intensive care in increasing health gain and preventing mortality. Broadly, the health care systems are still set against that, in spite of the fact that, increasingly, they will have to do that by proving the need for what they offer.

As it is this work demonstrates yet again the dominance of seemingly plausible pressures to provide services which match crude measures of unmet need. But need is generated by professionals who undeniably have concerns which are outside the needs of the community they serve. In a state of manifest uncertainty it is seems sensible to cover the most extreme possibility - which is precisely how overservicing gets to exist without its being obvious. Yet it is probably dominant in even the most financially constrained systems. Practice styles have a momentum or their own, much of which has surprisingly little to do with the health of populations.
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What can administrative databases tell us about overservicing in Canada?

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Introduction

How much overservicing is there in Canada? Policy-makers and practitioners across the nation have a great interest in knowing whether care is being provided which is ineffective or inefficient, or inappropriate or unnecessary. Recent fiscal pressures and deficit reduction battles have placed the entire health care system under intense scrutiny. Health expenditures typically account for a third of provincial budgets; yet, while the size of health care budgets make them prime targets for fiscal restraint, the growing demand for high quality health care services makes it difficult for policy-makers to reduce budgets without enduring the wrath of the population. Hence, any opportunity to extract savings from the system by reducing overservicing is met with great interest from all stakeholders.

Allegations of inappropriate use abound. Large, persistent regional variations in the use of a wide variety of in-patient and out-patient services have been well documented in numerous practice settings, both in Canada and internationally [Wennberg, 1982; McPherson, 1982; Naylor, 1994; Black, 1995], and such variations suggest either overuse or underuse of services in particular regions. Some conjecture that overservicing occurs because of inadequate training of physicians, or growing physician supply, which in turn leads physicians to increase their provision of services inappropriately to protect against lower market share and income. Physician organizations are quick to point out that patient-driven demand is a major cause of inappropriate care [Stewart, 1995]. Unnecessary visits to physicians for minor complaints, abuse of emergency departments, defensive medicine generated by frivolous lawsuits from patients are all believed to put pressure on physicians to perform more services than are necessary.

The traditional approach used in the United States to measure overservicing is through the development and application of appropriateness criteria to physician practices [Brook, 1994]. Such studies typically start with an extensive literature search and meta-analysis to establish the

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effectiveness of different treatment options for a given clinical condition. Consensus panels then consider different clinical scenarios in which such treatment options could be used, and rate their appropriateness of options on a scale of 1 to 9 for each clinical scenario. The extensive criteria are then applied retrospectively on medical records to examine the extent of inappropriate or appropriate care.

Such studies have faced several criticisms. First, they are time-consuming and expensive to use, and may be cumbersome to apply in day-to-day practice. Second, it may be difficult to anticipate all clinical conditions in which such criteria could be applied. Third, the validity and reliability of the appropriateness instruments have been questioned [Phelps, 1994]. There is no gold standard by which to evaluate these criteria, and the criteria have been shown on many occasions to differ depending on which body of experts developed them. For example, there are important differences between consensus guidelines on cholesterol testing between Canada, the US and other jurisdictions [Naylor, 1996].

In this paper, we examine alternative approaches to measuring overservicing. In particular, what inferences can we make on overservicing based on administrative datasets? Such datasets are readily available, and in many cases provide comprehensive data on an entire population. Hence, they provide an opportunity to observe what is occurring on a system-wide basis at lower cost compared to in-depth reviews. The disadvantage of administrative data is that they are often generated for other purposes (e.g. for remunerating physicians), and hence may not have all of the desired datafields, or may be lacking in data quality or detailed clinical information.

Given these caveats, what can we conclude about overservicing? We present, below, four case
studies of examples of what we can learn from administrative data, the limitations in their use, and strategies to address these limitations.

Example 1: Use of benchmarks for efficient use of hospital resources in Ontario

The Institute for Clinical Evaluative Sciences first began using administrative data in the early 1990’s to examine variations in use of hospital services [Basinski, 1994]. Measures of interest included length of stay for different diagnoses, or proportion of surgical cases performed on a same-day basis, for specific types of surgery. For each major diagnostic group, institutions operating at the 75th percentile for low length of stay or high same-day surgery rate were identified as benchmarks. The assumption was that such institutions were likely operating with a high degree of efficiency. While higher percentiles might be even more efficient, they could be more likely to represent outliers, local situations which were not generalizable, or underuse of resources. The estimated savings in hospital bed days were then calculated as the number of beds which could be saved if all hospitals operated at the 75th percentile. The conclusion of the analysis was that some 143,000 hospital bed days in 1991/92 could be saved if all hospitals operated at the benchmark.

At the same time, the Joint Policy and Planning Commission (JPPC), a partnership between the Ontario Hospital Association and the Ministry of Health, conducted reviews of benchmark hospitals to identify the processes of care which allowed these institutions to operate efficiently, and to verify that patient outcomes at discharge were acceptable. Detailed case studies of leading institutions were compiled and distributed across the province, with descriptions of how efficiencies were achieved (e.g. early discharge planning, close cooperation with homecare, specialized teams, patient education). These case studies were designed to give health care providers practical suggestions on how to improve their lengths of stay [JPPC, 1994].

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More recently, there has been interest in Ontario in selectively applying explicit criteria to measure hospital appropriateness. The InterQual ISD-A tool has already been used in other Canadian jurisdictions and institutions, including Saskatchewan [HSURC, 1994], Manitoba [MCHPE, 1996] and British Columbia [Blackstein-Hirsch, 1993; BC Provincial Advisory Committee on Clinical Resource Management, 1997]. Recently, the Joint Policy and Planning Commission (JPPC) of Ontario commissioned a study on non-acute hospitalizations [JPPC, 1997]. Sampling about one half of the hospitals in the province on six major medical and surgical diagnoses, the JPPC found that 18% of admissions and 45% of subsequent bed days were not acute. Further research is planned to examine how consistent the results of the InterQual analyses are with the administrative data analysis.

This case study illustrates how administrative data can lead investigators to best practices in the province. In this example, the focus was on improving hospital efficiency. The fact that some institutions consistently discharged certain types of patients early suggested that these were leading institutions; however, a subsequent detailed examination of those institutions was necessary to confirm that the quality in these institutions was adequate. This approach has obvious limitations. For example, institutions may appear to have low lengths of stay if they have a large number of inappropriate one-day admissions. These issues, however, can be addressed through the selective use of more refined tools such as explicit appropriateness criteria.

Example 2: Prenatal Ultrasound in Ontario

Prenatal ultrasound is used in the detection of fetal abnormalities, multiple pregnancies, intrauterine growth retardation, as well as to estimate gestational age and locate the placenta. It may also be used for such medically unnecessary reasons as sex determination or to obtain a
souvenir, in-utero photograph. Several clinical trials suggest that in uncomplicated pregnancies, the benefits of routine prenatal ultrasound are questionable [Thacker, 1985]. Nonetheless, the Society of Obstetricians and Gynecologists of Canada (SOGC) has published guidelines [SOGC, 1997] suggesting that in general, pregnant women should receive one routine ultrasound. These guidelines gave the benefit of the doubt to performing somewhat more ultrasounds than has been established by the scientific literature. The Health Services Utilization and Research Commission (HSURC) in Saskatchewan has issued more restrictive guidelines, recommending prenatal ultrasound screening only for women at risk for abnormalities [HSURC, 1996].

The number of ultrasounds per pregnancy has been rising steadily in Canada. In British Columbia, age-sex adjusted rates of ultrasounds per pregnancy rose from 0.90 in 1981/82 to 1.75 in 1989/90 [Anderson, 1993]. In Ontario, similar rates of growth were observed in the 1980’s [Anderson, 1993]. A more recent analysis we prepared for the Ontario Ministry of Health demonstrates that ultrasounds per pregnancy have risen from 1.7 in 1990/91 to 2.3 in 1994/95 (Figure 1). Furthermore, 62% of women receive two or more ultrasounds, in excess of the SOGC recommendations (Figure 2).

Was there any apparent justification for this increase? During this time period, there has been no significant change in the rate of complications in pregnancy. One factor which may have driven increased use of ultrasounds was the introduction of triple marker screening for neural tube defects in July, 1993. This blood test is heavily dependent on accurate estimates of gestational age, and an ultrasound is required to confirm both the dates and the diagnosis. However, this policy change took place before much of the utilization increase occurred.

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Figure 1: Prenatal Ultrasounds per Pregnancy

Ultrasounds per Pregnancy

2.5

2

1.5

1

0.5

0


Fiscal Year

Source: Ontario Health Insurance Plan physician billing data

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Figure 2: Distribution of Number of Ultrasounds per Pregnancy

Source: Ontario Health Insurance Plan physician billing data

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The amount of clinical information in the OHIP database is negligible. Hence, it is impossible to determine the indications for ultrasound on each patient. Many of these ultrasounds may have been performed for complications of pregnancy, such as loss of fetal movement or threatened abortion. Women with such cases may have had multiple ultrasounds. However, some research suggests that only 30% of women develop complications during their pregnancy requiring evaluation by ultrasound [Waldenstrom, 1988]. Yet, the proportion of women received two or more ultrasounds was double this complication rate.

It appears that the increase in use of prenatal ultrasounds has occurred without any apparent justification. These findings are suggestive of overuse of the technology. Patterns of practice do not conform with established clinical practice guidelines, which themselves are considered to err on the side of caution. Clearly, the lack of clinical data limits our ability to determine with certainty whether overuse occurred. The complication rates quoted in the literature may themselves be inaccurate or not generalizable to the Ontario context.

These results were presented to a working group of the Ministry of Health on reform of the physician fee schedule in March, 1997. The working group recommended that the preamble to the fee schedule be revised such that only one routine prenatal ultrasound in pregnancy would be remunerated by OHIP, and that if maternal serum screening was ordered, one limited prenatal ultrasound could also be ordered [Ontario Ministry of Health, 1997]. However, the new guidelines also state that additional ultrasounds may be ordered in the case of pregnancy complications. The frequency of and indications for ultrasound in these circumstances were not clearly stated. It was anticipated that more specificity to this clause could be added once new guidelines from McMaster University on appropriateness indications for ultrasound are released.

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Example 3: Use of Doppler Echocardiography in Ontario

Echocardiography refers to a family of tests that use ultrasound to image the heart. Two-dimensional echocardiography creates 2-D images of the anatomic structures of the heart, and is useful in evaluating changes to heart structures from hypertension, myocardial infarction and other cardiac conditions. Doppler echocardiography is an add-on test to conventional 2-D echocardiography, and assesses blood flow by detecting frequency shifts of ultrasound waves reflected back from moving blood cells. Doppler studies are particularly useful in assessing valvular disease and septal defects [Chan, 1995].

Echocardiography is one of the fastest growing physician expenditures in Ontario. Total expenditures on all types of echocardiography rose from $28.3 million in 1989/90 to $47.9 million in 1994/95 [Anderson, 1996]. While part of this increase was related to an increase in the number of 2-D echo studies done, an important driver of expenditure growth was also the growing use of Doppler as an adjunct study. The percent of 2-D echo studies in which a Doppler was performed rose from 53% in 1989/90 to 77% in 1992/93 (Figure 3) [Chan, 1996]. Secondary data analysis further revealed that there were wide variations among physicians in how often they used Doppler studies. 48% of physicians used Doppler in at least 95% of the conventional echocardiogram tests they performed, 13% did not perform Doppler at all, and the remaining 39% used Doppler on a selective basis (Figure 4).

Many of the observed trends were certainly suspicious of overservicing. The rapid rise in expenditures in the absence of any major change in disease patterns was of concern, and the rise in Doppler expenditures was also perplexing. When Doppler was first introduced in the early 1980's, the capital costs of adding Doppler to a standard 2-D echocardiography machine were

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Figure 3: Doppler / Echo Ratio over Time

Source: Ontario Health Insurance Plan physician billing data

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Figure 4: Distribution of Doppler/Echo Ratios Among Physicians

% of MDs Performing Echocardiography

Doppler-Echo Ratio

Source: Ontario Health Insurance Plan physician billing data

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high, and remuneration rates were set accordingly. In the late 1980's, however, Doppler became recognized as a standard feature of all echocardiography equipment. Yet, the remuneration fee for Doppler was not readjusted downwards. Hence, the financial incentives for performing Doppler were greater. The tendency of some physicians to use Doppler routinely as an add-on procedure was also in question; while Doppler is clearly useful in assessing valvular disorders, it was not clear what purpose it served where the echocardiography test was requested primarily to assess structural changes in the heart (e.g. left ventricular wall thickening from hypertension).

At the same time, there were arguments, on clinical grounds, to justify the growth of echocardiography. A Canadian consensus statement on management of congestive heart failure highlighted echocardiography as a key tool for assessing and managing the disease [Johnstone, 1994]. Secondly, some cardiologists have argued for use of Doppler to evaluate diastolic dysfunction, believed to be a form of left ventricular failure [Nishimura, 1997; Gaasch, 1994]. However, this claim is controversial, as there is no clear evidence yet to suggest that attempts to treat diastolic dysfunction lead to meaningful improvements in quality of life [Pagel, 1993].

To investigate this issue further, we examined records from Sunnybrook Health Sciences Centre, an academic institution which has routinely performed Doppler echocardiography on almost all its patients over the last several years. The Sunnybrook database records a variety of patient demographic data and the reason for referral, as well as all of the major clinical parameters recorded from an echocardiography exam. Using this database, we tested the hypothesis that information obtained from reason for referral and 2-D echocardiography can identify cases where no new clinically significant information is obtained on the Doppler study. Logistic regression models were developed for finding significant valvular regurgitation on Doppler examination.

For ten common referral diagnoses, a clinically significant flow abnormality warranting assessment by Doppler could be confidently ruled out, with a negative predictive value of 95%, through the application of simple scoring algorithms that make use of readily available demographic and two-
dimensional echocardiographic variables [Cox, 1997]. If applied on a province-wide basis, this
algorithm could reduce by 40% the number of Doppler studies and result in savings of about $1
million, under current remuneration schedules.

**Example 4: Use of spirometry in Ontario**

Spirometry is a diagnostic test used in the management of respiratory diseases. Its most common
use is for the diagnosis and follow-up of patients with asthma. To perform the test, the patient
blows into a spirometer, a machine which measures the rates of airflow from the lungs over time.
[Crapo, 1994]. There are two types of spirometer. The closed circuit spirometer is used by
laboratories and is considered the gold standard. In the late 1980's, a new, hand-held portable
spirometer was introduced into the market, at substantially lower cost. These units, however,
may yield inaccurate results if not calibrated properly [Nelson, 1990].

Spirometry use has risen sharply over the past several years, from 353,000 tests in 1989/90 to
463,000 in 1994/95 [Chan, 1997]. Even after controlling for changes in prices, population
growth, ageing of the population, and substitution from spirometers to flow-volume tests (i.e.
substitution from a less expensive to a more expensive variant of spirometry), there was a 19.6%
increase in utilization over this time period. Among GP/FP’s who perform the test, the per capita
rates of testing by GP/FP’s was seven times higher in Metropolitan Toronto than in Northern
Ontario. The distribution of individual physician billings is heavily skewed to the right. A small
proportion (7%) of physicians account for 40% of the GP/FP billings on spirometry (figure 5).
These high volume physicians are concentrated in the Metro Toronto region, and account for
much of the regional variation in use (see figure 6).

This case study illustrates the inherent difficulty in making inferences about overservicing in many

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Figure 5: GP/FP Spirometry Billings Ranked from Lowest to Highest Billings

OHIP 1993 First Quarter Billings

Source: Ontario Health Insurance Plan
physician billing data

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Figure 6: GP/FP Spirometry Billings per Capita by District Health Council
Comparison of High & Low Billing GP/FPs, 1994/95

Source: Ontario Health Insurance Plan physician billing data

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areas of clinical practice. Clearly, the seven-fold difference in utilization rates between Metro Toronto and rural districts does not have any justification. However, there is not enough clinical data to ascertain whether this is due to overservicing in the Toronto region or underservicing in Northern regions. More significantly, the greatest difficulty in making the case for overservicing is the lack of specificity of practice guidelines. Guidelines developed in both the US and in Canada state that spirometry is important for diagnosis and may be useful for follow-up [NHLBI, 1992; Ernst, 1996; Hargreave, 1990], but do not describe the indications for ordering the test for diagnosis nor the frequency with which it should be used for follow-up. Furthermore, the guidelines do not specify clearly under what circumstances peak expiratory flow meter measurements, a much cheaper but unremunerated test, may be substituted for spirometry.

Discussion

Analysts of administrative datasets frequently encounter patterns of utilization which do not have any apparent justification. One common pattern is small area regional variation (SARVs); another pattern is growth in utilization of health services in the absence of any obvious change in prevalence of disease or population health status. Yet, most analysts are reluctant to claim that overservicing exists, based on these trends alone. SARVs may represent persistent underservicing in low rate regions, and several studies have shown that inappropriate care occurs in both high and low utilization regions [Leape, 1990; Chassin, 1987]. Similarly, rampant growth alone may represent a response to unmet demand rather than overservicing.

Despite these limitations, administrative data clearly have an important role to play in the identification of overservicing. In all of these examples, administrative data analysis may be considered as a screening test, identifying patterns suspicious of, but not definitive enough to prove, overservicing. The administrative data analysis then pointed researchers to specific areas

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for further study, from developing case studies in scenario 1, to assessing deviation from practice patterns expected from practice guidelines and clinical evidence in example 2, to further analysis of detailed clinical databases in example 3.

Each of the first three case examples illustrates different approaches to addressing overservicing. Example 1 identified best practices and gave health care providers practical solutions on how to improve the delivery of care. Example 2 led to an attempt to change reimbursement policy to discourage overuse. The findings from example 3, in theory, could be used to reform reimbursement policy, or could be programmed into existing software supporting echocardiography machines to inform the technician performing the study when a Doppler study is unnecessary.

Trying to reconcile utilization patterns with clinical practice guidelines is an important tool for research. Data on prevalence of disease at different stages or different levels of complication can give some hints as to whether overservicing is occurring. The example of prenatal ultrasound is one example of this approach. Other examples from our research include analyses of drug prescribing behaviour. Ranitidine ranks first in expenditures for individual drugs in the Ontario Drug Benefit Plan, and, along with other expensive H2 antagonists, are prescribed nine times more frequently than cimetidine, which costs two-thirds less. Current guidelines, however, suggest that for most patients cimetidine can be safely substituted [Centre for Evaluation of Medicines, 1993]. Another example is the analysis of blood pressure medications. Highest expenditures are for calcium channel blockers and ACE inhibitors [Anderson, 1996], both of which are considered second or third line treatment for hypertension, according to Canadian consensus guidelines [Reeves, 1993]. Data from these analyses have been used to support campaigns to encourage greater use of less expensive medications [ORTAP, 1997].

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The greatest barrier to identifying overservicing, however, may not be the data themselves but the lack of specificity of many of the existing practice guidelines. This case is illustrated in example 4 on spirometry. Should an asthma patient have a spirometry test once a year, once a month or at every visit to the physician? Should smokers or patients in certain occupations at risk of developing respiratory diseases be screened routinely? Should peak flows be the mainstay of follow-up, with spirometry reserved for specific complications? The reluctance to add more detail to guidelines may be reflective of the general desire not to add too much complexity or rigidity to the guidelines.

One major area of our research is examining the behaviour of physicians in areas of ill-defined parameters on appropriateness. In such areas, a small number of physicians appear to position themselves at the high utilization end of the appropriateness spectrum. This is manifest through a persistent and marked right-skewing of utilization distributions for many different types of services. In example 4, a small group of physicians accounted for much of the seven-fold difference between high and low regions as well as 40% of expenditures. A recently submitted study on general practitioners and family physicians in Ontario billing over $400,000 annually has noted similar patterns and concerns about possible overservicing [Chan, 1997 (2)].

The Berwick theory of quality management stipulates that efforts to improve quality or physician performance should be directed towards all physicians and not just outliers, or “bad apples” [Berwick, 1989]. The underlying assumption of this theory is that majority of the care is provided by the average typical physician, and focussing on the behaviour of outliers does not capture the bulk of clinical practice. Our research, however, shows that the right skewing phenomenon is so pronounced that outlier physicians typically account for a disproportionately large percentage of physician expenditures. Provincial governments have attempted to address this issue by imposing threshold reductions, or decreases in fees paid for services once a physician’s billings enter a high

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billing zone [Barer, 1996]. These policies, however, are blunt instruments which do not distinguish between appropriate and inappropriate service provision. One may speculate whether governments, operating in a context where difficult, immediate decisions on cost containment had to be made, had enacted these policies on the imperfect information that such patterns were suspicious, but by no means conclusive, of overservicing.

The amount of clinical data available on databases varies widely. In Ontario, there are reasonably good diagnostic data for hospitalizations, and an increasing amount of data documenting severity of illness. Physician billing data have some diagnostic information, but the quality of this information is suspect. However, there are almost no data on clinical outcomes related to services provided, collected on any system-wide basis. As such, inferences on overservicing from administrative data tend to be focussed on identifying care that is inefficient, rather than care that is ineffective. Some attempts have been made to construct proxy measures for outcomes from administrative data; readmission rates, for example, have been used as a measure of unstable medical condition at the time of discharge. Such measures, while useful, are clearly limited because they are a function of other utilization patterns and not just the patient’s condition. Collecting post-intervention outcomes data would be the ideal for health services researchers, but its great cost would make such efforts difficult to justify to cash-strapped governments. In the interim, however, such data could be collected on a selective basis to investigate patterns of concern identified through administrative data analysis.

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Conclusion

Administrative database analysis provides important insights to policy-makers on potential overservicing. Patterns suggestive of overservicing include regional variations in utilization, utilization growth in the absence of any change in patterns of disease or clinical indications for a service, and utilization patterns which do not appear congruent from what would be expected if clinical practice guidelines were followed. This type of analysis, however, should be considered a screening test for overservicing; the definitive proof for overservicing, in most cases, should be obtained through more formal and detailed evaluations. An emerging area of research is the behaviour of physicians in areas of clinical practice where there is little or no consensus on appropriateness. Our preliminary findings suggest that in these areas, some physicians appear to position themselves at the high end of the spectrum of utilization patterns, and in the process account for a grossly disproportionate share of expenditures. Policy-makers need to arrive at a consensus on how to deal with such situations, through options such as more detailed guidelines and accountability mechanisms.

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When I met Klim McPherson coming into the meeting today he said that he is an unreconstructed small area variationist. I think that’s how he introduced his first slide on gall bladder rates across the world. In thinking about it, and listening to the presentations this morning, I realise that I have become a reconstructed, small area variationist. What I hope to show you today is how to look at the kinds of data that were presented this morning, reorganise them a bit, make some sense of them, and in fact decide which is “the duck”; i.e., which rate is too high.

I don’t think anybody in the room could have listened to those presentations, seen those graphs, and walked away saying there is no overservicing: Let’s simply take it off the table and go on to the next discussion topic. The papers, and certainly the discussions, have covered all the points which are useful in illustrating the degree to which overservicing exists. I’m not going to repeat that. However, it’s very important to appreciate that despite the fact that overservicing exists, it’s not easy to tell who are the over-servicers and who are the over-servicees. In fact, the Federal/Provincial committee which looked at issues relating to the control of health care costs asked me, along with David Naylor, to develop rules for identifying the overserviced, and we had to say it’s not that simple. That was our bottom line and we ended up walking away from that request, (although if I’d had that graph showing the forty-fold variation in spirometry, I’m not sure I’d have been so reluctant to identify overservicing). But even in that area, you’ll notice that Ben was saying there are clinicians who are going to make a very strong case that their practice style or the promise of the new technology will deliver benefits. These high servicing clinicians will argue that there will be patients who will suffer, who will not get the best care possible, if they don’t receive spirometry testing. What’s going on?

It occurred to me in reading these papers for the second, third, I’m not quite sure which time, that there’s a problem here with levels of analysis. All of the analyses which we typically use to demonstrate overservicing take place at the population level. So we’re looking at rates which describe populations. We then buy into the over-arching ideology...
of the health care system, that more health care must be better. No matter what the amount of care delivered, there will be individual patients who benefit, or who might potentially benefit. Klim gave you the example of intensive care use. I think in his paper he estimates that 2,000 more patients might die if intensive care in Britain is not provided at the highest level. So those are 2,000 lives that might be saved. We frequently get Letters to the Editor saying, "What is the value of the human life? Are you saying you won't allow this kind of practice if it has the potential for saving only one life?" Here is the fundamental dilemma. We have no problem demonstrating overservicing at the population level. Our problem is identifying the individual who has been "overserviced".

Life becomes much easier if one stops trying to identify the overserviced individual, and stays focused at the population level, distinguishing between what is overservicing, and what represents appropriate high levels of service to high need, unhealthy populations. Let me illustrate this alternative approach. In Manitoba we have new regional health authorities and we’ve been trying to put together data which would be useful to them in managing the system and helping them to decide when too many services are being provided, when too few; data which identify areas where they need to apply management skills to get that use down, and where they have high use which is in fact appropriate. Here we focus on hospital use across physician service areas within one region of our province. What is the total number of days of hospital care provided per capita to residents in each of these areas? (See Figure 1.)

As you can see, there are two areas which are, by any measure, very high users of hospitals, and we’ve got one area where use looks low. Now, where’s “the duck?” Well, I too used to wring my hands and say, "How can we say that these areas are high or that that area is low?" We have to look for something that’s going to tell us that. I would argue that what you want to find is a measure of the health status of the populations for which you are comparing service rates. I’m using premature mortality here. In other words, we’re looking at the population aged 0-74 years in these areas, and we’re asking at what rate are these individuals dying (from all causes of death), over a recent five-year period. This is a measure which is widely used as a measure of population health status, particularly in Britain and other countries. In Canada we are now using it to adjust needs-
Days of Hospital Care
(Sub-Areas of Parkland Region)

Age/sex adjusted days per 1,000 residents

- Gilbert Plains
- Dauphin
- Alona
- Swan River
- Roblin
- Pine Creek
- Mb

Days for Short Stays (<45 days)   Days for Long Stays
based funding formulae in several provinces. Indeed, when we look at those same areas and ask what are the health characteristics of the populations of these areas, we find this very interesting pattern. (See Figure 2 - Premature Mortality Rate.)

These are exactly the same areas that you were looking at before, arranged in exactly the same order. Pine Creek, which as you recall had very high hospital use, has one of the highest premature mortality rates in the province, so it has one of the least healthy populations in the province, whereas Gilbert Plains, which had a very low hospitalisation rate, turns out to have one of the healthiest populations in the province.

Alonsa was the other area that had a high hospital use rate. Now, looking at health status of these residents, where’s “the duck?” As a first cut (and I hope that you begin to buy into this as a final cut), I would suggest that where you have high use among populations of similar health status, the area with the very high use rate is a duck. This is an outlier, where usage patterns do not relate to the needs of the population. On the other hand, we don’t want to start trying to reduce the rate at which Pine Creek residents are hospitalized. Residents of this area have a high need for health care. Now, if you want to get a little more sophisticated, you might say, “Wait a minute. You’re calling this a little early.” What if Alonsa residents are also a high risk population? Perhaps by providing large amounts of hospital care to these residents relative to other populations, the health care system is reducing the health risks in a poor health population and this should have been considered a success story; with high health care use this population has achieved reasonably good health status. An interesting, important, alternative hypothesis.

So, next we look at the socio-economic characteristics of area residents using a socio-economic risk index developed by researchers at the Manitoba Centre for Health Policy and Evaluation. We use a variety of indicators for identifying a high-risk population, including things like unemployment, the value of an average house, and education rates. We’ve standardised and identified each area according to its deviation from a provincial mean, which is zero. So, across several of these areas, there’s essentially no difference in the socio-economic characteristics of their populations: Alonsa residents are no more at high socio-economic risk than are residents of the healthiest, low hospital use area – Gilbert Plains. However, residents of Pine Creek, the unhealthy, high users of
Premature Mortality Rates
(Sub-Areas of Parkland Region, 1991-1995)

Age/sex adjusted rates of premature death per 1,000 residents age 0-74

- Gilbert Plains
- Dauphin
- Alonsa
- Swan River
- Roblin
- Pine Creek
- Mb
hospitals, score more than two standard deviations higher than the provincial mean in terms of socio-economic risk characteristics. (See Figure 3.)

Let me state a controversial position: I am unaware of any study in a developed country (with high or low levels of health care) which has demonstrated a clear relationship between health care supply and health status. You can find high levels of use in healthy populations, you can find high levels of use in unhealthy populations. I would argue that we need to change the burden of proof as to what underlies our assumptions as to which rate is right. After we've taken account of health status, or population needs characteristics, the burden of proof has to move to those who are delivering high rates of care; those areas which are using high rates of specialist services, or high rates of procedures, need to prove that this is in fact beneficial to health. We should not be accepting that more is necessarily, or plausibly, better.

There was a physician in the audience at yesterday's CHSPR policy conference whose comment relates back to why it's so difficult to identify who the overserviced are. There was discomfort in the room when he said this, but he said, ask those 30% of the individuals who are being overserviced, who are being over-hospitalised, to come into my office before I admit them, and identify themselves as overusers. I'll be happy not to admit them to hospital. In fact, you researchers are telling me after the fact that this was unnecessary, after they've been in hospital, after they've had their spirometry test. That's not very useful to me as a physician.

What I'm suggesting to you is to move this discussion of overservicing and relative "need" for health care to the population level, and to identify the population which has high socio-economic risk, low education, high unemployment. I can guarantee you eight out of ten times, if not nine out of ten times, that populations at high risk socio-economically are going to score poorly on measures of health status. They won't just score poorly on mortality measures; they will also score poorly on self-reported health, in terms of functional disability, in terms of acuity of condition, for which they're admitted to hospital. That high risk population is going to need high levels of health care and conversely, low risk populations are going to need low levels of health care. That's not necessarily going to solve the dilemma facing the individual physician dealing with the
Socioeconomic Risk Index (SERI) Scores
(Sub-Areas of Parkland Region)

Standard deviations from provincial mean (zero)

Gilbert Plains
Dauphin
Alona
Swan River
Roblin
Pine Creek
Mb (Zero)

0.0 0.5 1.0 1.5 2.0 2.5 3.0
individual patient's problem. But from a planning perspective that is indeed going to help you sort out these issues.

At last year’s trilateral conference, I was beginning to make this kind of an argument with a fellow delegate and he said well, wait a minute. You’re telling me that you can’t demonstrate that health care makes a difference. At the same time you’re telling me we should be providing more health care to high need populations. Explain to me, please, how that makes sense. A not unrelated question emerged when I presented a similar set of overheads focusing on differences across Winnipeg neighborhoods to a local audience: the high hospital use high premature mortality area was that of the inner core. The audience member remarked that we were talking about a largely aboriginal community which was influencing this very high premature mortality rate. He went on to say, “We know the kinds of things which those people are dying from. They have accidents, homicides, suicides, and deaths which come from needle sharing and HIV infection. Tell me what I’m supposed to do about this as a physician?” So we looked at the causes of death among residents in the poorest Winnipeg neighbourhoods, and residents of the more affluent communities. (See Figure 4.)

When this is done in Manitoba, we find that in the lowest income neighbourhoods, 8% are dying of accidents and infectious disease and HIV deaths, compared to 3% in the higher income neighbourhoods. There is a reduced proportion of deaths from cancer in low income neighbourhoods, but when you look at the actual number of deaths in these neighbourhoods from cancer they are higher than those in the high income neighbourhoods. The size of the pie wedge indicates the proportion of deaths from that cause. There are equal population numbers in each of these circles (that is, 20% of the population in each). Still, we have four times the rate of homicides, accidents, and HIV deaths. The total is 10% of the deaths in this group. In the other group it’s about 3%. So there is a variation, but that’s not what we’re talking about in terms of the ill health burden which individuals in these high-risk groups bear.

If we look at neoplasms, it looks like we’ve got substantially fewer cancer deaths in the lowest income group than in the higher income group. Certainly 44% of the deaths in the highest income group are from cancer, compared with only 27% in the lowest
Type of Deaths Among Residents of Low and High Income Neighborhoods

Lowest Income

- Neoplasms: 27.4%
- Circulatory: 27.9%
- Other: 34.9%
- Accidents: 4.2%
- Infectious Diseases: 2.3%
- Homicides: 1.4%

Highest Income

- Neoplasms: 43.8%
- Circulatory: 27.4%
- Other: 25.5%
- Accidents: 1.4%
- Infectious Diseases: 0.9%
- HIV: 0.5%
- Homicides: 0.5%
income group. However, if we look at the numbers of deaths which occur in Winnipeg every year, we had 161 deaths from this 20% of the population which were caused by neoplasms, and only 133 deaths from neoplasms in the 20% of the population which was the highest income group in Winnipeg. So we can’t ignore the health problems of these high-risk groups on the grounds that they are not relevant to the health care system. That’s simply not true. These deaths, these diseases, look very much like those of everybody else in the system.

To conclude my observations about what should one do with these kinds of physician practice variations data, the kind of small area variation data which we’ve seen today, please note I am not talking about cross-country comparisons. What we’re talking about is within a health care system where you have a given level of expenditure. How does it make sense to allocate those expenditures if you’re interested in doing your best, given the existing health of the population? It has nothing to do with where the next extra dollar should be spent, whether it should be spent on CAT scans for low income groups or spent on early childhood education. That’s not what we’re talking about. What we’re talking about here is moving towards vertical equity in the delivery of care, given what we can learn from exploring population based data. The quote which I like comes from Maynard and Bloor in 1995 saying that health care funding should always be modest. Its benefits are unproved and clinical practice exhibits large, unexplained variations. That I think is what we’ve heard about in spades today. I think we’ve also heard about alternatives being developed in Ontario that may be helpful in dealing with overservicing. However, whenever we get into this overservicing debate, we must be conscious of distinguishing what is overservicing from what is legitimately high use driven by high health care needs. Use this to find “the ducks.”
General Discussion after Morning Panel:

Discussion began with the comment that expenditure planning for resource allocation requires sophisticated measures. The mortality rate does not mean the same thing in developed countries as it does in the undeveloped world. You need to look at the size of the small areas, for example, many range from the size of 8,000 to over 50-100,000. We need to try and get some consistency in size. After controlling the number of beds in an area, the number of doctors in the area, community care, and after recognising interaction between supply and need, it seems that 40% of the variability in utilisation is at the district health authority level in Great Britain. Within these authorities, access to hospital beds makes no difference in utilisation but access to physicians does influence utilisation.

Another participant remarked that approximately ten years ago Kaiser Permanente had looked at what could change physician behaviour. They decided to examine practice patterns for physician outliers to determine the difference in their type of practice, and then they went on to ask these physicians why their type of practice was different. In many cases the physicians related this to their past experience, either of litigation or of their own ill health. Kaiser Permanente also sent utilisation data back to physicians with names of physicians attached and this resulted in a reduction of utilisation of specific interventions. This group is now looking at use of health status indicators in reducing utilisation.

It was then remarked that overservicing is a major concern in Australia because they have had ten years of uncapped fee-for-service and have an estimated 4,000 surplus GP's. In Australia, GP’s can charge a user fee over and above the amount paid to them by the Medical Service Plan. Researchers find that in capital cities where GP’s have an average of 982 patients and earn $173,000, 7.5% of the GP's charged user fees, whereas in rural areas, where GP’s have an average of 1362 patients and make and average of $176,000, 20% of GP's charge user fees. It was clear that where there was an oversupply of physicians, the practitioners did more work on smaller populations. He said it’s very easy to get convictions of fraud, but no one’s been yet convicted for overservicing, even when taken to the Supreme Court. They are trying to link administration to peer review.

One conference member remarked, in relation to Ben Chan’s paper, how Saskatchewan took two years to make recommendations on ultrasound which run counter to the Society of Obstetrics and Gynaecologists of Canada guidelines. When published, the physicians said that the public pressure for ultrasound was driving the increasing utilisation. The Ministry of Health then put out a communication to the public on ultrasound and the need for it. This upset the profession and also the group that made the recommendation in the first place and they wanted to withdraw the recommendation. How do you deal with the main core of physicians who genuinely believe that what they are doing is appropriate even though often it is not?

Another conference member complained that there was a frustrating issue that no one has been addressing, which is the underservicing issue. He stated that he knows there is overservicing but the problem of underservicing is ignored by health economists who should give it at least equal attention. For example, for pap smears, the shift has been from
overservicing to underservicing. He felt there has been a tendency to restrict the focus on variables of interest to health economists, rather than variables that affect patient outcomes. With regard to the paper addressing the ICU study, the study addressed variables of interest to health economists rather than variables which may affect utilisation. For example, what alternative care was provided in the absence of an ICU, and what are the costs of looking after people in wards versus care in ICU’s? The biggest factor affecting those going into hospital is the availability of another place to care for that patient. In reference to Noralou's work, in area 'YC' where large numbers are hospitalised, it may be because there are no other facilities available. The basic problem with this type of research is that it doesn’t consider all the variables that could potentially affect the results.

Another speaker had a question for Noralou regarding her presentation and Bob Evans’ earlier discussion of the use of blunt instruments. What are the plans for areas where there are increased hospitalisations despite decreased need? It was then noted that over-servicing is not a meaningful term because it implies a point where there is a need for a certain level of service. There is no correct level, it depends on how we choose to spend the money. Therefore, what health services should do is determine the budget, don’t allow this budget to expand and then distribute it equitably through weighted capitation. Unless this is considered, you end up facing Bob Evans’ warning about political versus technical solutions. He also asked about changes in the health care system or health care services provision resulting from increased doctor training. For example, a change in the mix of available capacity can lead to a change in the whole health care system or shifts from effective health promotion to less effective interventions.

Another speaker noted that we don't just operate within a medical care box, in which we've decided what to allocate to it. It's tough enough to operate within the box but we need to include expenditures on the environment and other health determinants in our allocation decisions.

Then followed responses from the presenters and the discussant. David Goodman replied that in the US, an increase in physician supply rapidly leads to further specialization of the workforce. Arguments about how this trend should be altered and the efficacy of alternative interventions are largely untested. There is an argument about how to halt the trend towards specialisation with a conflict of the stakeholders but there is no conflict about the efficacy of workforce. He wonders that if there is no further benefit from increasing supply, maybe we should not worry about it. There are also cost issues. We have to know the benefits before we can calculate the cost to benefit. If we don’t know that, we don’t know what we’re buying.

Ben Chan replied that he agreed with the statement that underservicing is as much a problem as overservicing. For example, in his study, some of the spirometry rates in some areas of the province were extremely small; it looks as though there is underservicing in those areas. Clinical practice guidelines do not give enough guidance on when procedures should be used, how they should be used, and who they should be applied to, and need to be much more specific. Though the overservicing issue tends to focus on the supply side and incentives, we also need to look at the demand side. For example, in Ontario there are a certain number of GP's who have been earning over $400,000 a year, which would lead one to assume that there
was overservicing, but the College is unable to act because there are no clear guidelines on many services.

Klim McPherson responded that we need to differentiate between macro and micro overservicing issues. Also, there's a need to educate the public regarding the potential downside to more medical care. More does not always mean better. Research does not necessarily answer questions on the utility and the value of medical care. It is possible that in the UK they are near the flat of the curve for intensive care unit beds, but they don't know whether they are actually on the flat of the curve yet. Researchers need to look at the social aspects of care as well as the medical issues; for example, ultrasound may be important for women to see their babies although not medically indicated.

Noralou Roos commented that small area variation data may be used to bring to the attention of policy-makers that some areas may be relatively underserviced. She will be including data about the availability of home care and nursing homes in coming studies. In relation to the question about whether to worry about over-supply, the answer is to look at Bob Evans' equation.
Afternoon Panel

Primary Care Reform
Primary Care Reform in the US: The Best of Times and the Worst of Times

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For most of the latter half of the 20th Century, primary care has been largely a neglected facet of the US health care system, obscured by the shadows cast by the citadels of specialty medicine. These lofty icons of American culture were richly furnished with all of the latest technology that US affluence could afford, that a biomedically-entranced public could desire, and that imaginative, well-intentioned physicians could devise. The humble GP in his fraying tweeds became a second class citizen. The cardiologist, slipping from Armani suit into surgical scrubs to enter the catheterization suite to inject, dilate, stent, and laser the coronaries of an increasingly sedentary, atherosclerosis-laden population, became the new American medical hero.

Has a new era arrived for primary care in the US in the 1990's? Is a convergence of public opinion, policy consensus, and market prerogatives occurring that is reinstating the primary care practitioner to a commanding role in the health care enterprise? Are innovative models of primary care being developed in the US that might prove instructive for planners and policy makers in other nations?

In this paper, I will briefly review the historical role of primary care in the US, and discuss its resurgence in the 1990's. The key dynamic in the shifting stock of primary care practitioners has been their assignment to the role of “gatekeepers” in managed care health plans. I will discuss various features of this gatekeeper role, including organizational structures, patient flow, and payment and financial incentives, and how these changes may be affecting both practitioners and patients. I will also highlight a few primary care group practices that may be considered innovative in the US context. (A note of caution here for those who must skip to the end of a book and read the final passages first: what a US audience considers innovative in primary care tends to be old hat in the UK and some other European nations.) I will conclude by offering opinions about the lessons that reform of US primary care may hold for observers from other nations.
The History of Primary Care in the US in 500 Words or Less

In the beginning, there were general practitioners. (There were also a few surgeons, but they evolved from barbers.) Then god created specialists. This occurred in the early 1900's. The first specialist in the US was the ophthalmologist, the result of the invention of the ophthalmoscope--establishing the well-respected pattern of subspecialties being defined by innovation of a new device or technology that became the signature element of that specialty's work. Specialties developed board certification processes and training programs, leaving GP's by 1970 as the only group of physicians in the US that had no board certification credentials available and that required only a single year of training following graduation from medical school.

By 1990, the US had 7 specialists for every GP-family physician. Graduating students faced virtually no limitations on choice of specialty. For residency training programs, the "Field of Dreams" principle was in full operation: "If you build it, they will come" (and the federal government will foot most of the bill).

Chaos ensued. Primary care lacked definition as a particular scope of practice and expertise. GP's emulated specialists by entering the hospital setting and attending to hospital inpatients as well as providing ambulatory care. Specialists proliferated to such an extent that there were insufficient numbers of patients with special problems to occupy their practices. Many specialists began devoting a substantial proportion of their practice to providing general primary care services outside of their particular specialty domain. A famous study in the 1970's found that nearly 20% of patients reported relying on a specialist as their principal source of care. Patients, insured by a fee-for-service system, directly routed their medical problems to the specialist of their choice, often entirely bypassing a GP in the process. A patient visited a dermatologist for a rash, a gastroenterologist for a stomach ache, an orthopedist for a back ache, and a gynecologist for an annual pap test. Coordination of care suffered, expenses soared, and rumblings of discontent about the sorry state of primary care occurred among some of the public and policy leaders.

By the early 1970's, the rekindling of interest in primary care had led to some important developments in the US. In 1971, family practice became a board certified medical specialty, transforming 1 year GP internships into 3 year, comprehensive family medicine residency training programs. 1978 marked the issuance of the WHO's Alma-Ata declaration and an influential report on primary care by the US Institute of Medicine. Experiments were occurring in developing innovative models of primary care practice, such as collaborative team models and community-oriented primary care. Usually, these
experiments took place in community health centers serving indigent patients or in teaching programs, and did not enter mainstream medical culture.

The 1970's also marked the beginning of the modern HMO era, or at least the rechristening of this type of insurance and delivery model. Plans such as Kaiser Permanente had developed in the 1930's-1940's under the appellation "prepaid group practices." These plans were vilified by organized medicine as socialist conspiracies due their promotion of salaried group practice—an organizational model viewed as a threat to the independent, entrepreneurial practice of private medicine. (The socialist label may actually have been earned by some prepaid group practices that were founded as consumer-physician cooperatives by left-leaning social activists. It is not certain whether Henry Kaiser, the US industrial tycoon who formed the Kaiser-Permanente plan, appreciated the irony of this characterization for the Kaiser health plan.) In 1972, prepaid group practices were "reborn" as "Health Maintenance Organizations"—a term coined by President Richard Nixon's health policy advisor, Paul Ellwood, to escape the political legacy conferred by the term prepaid group practice. Nixon's promotion of privately financed HMO coverage as a conservative alternative to government financed national health insurance led to the enactment of the HMO Act, which spurred expansion of HMO's. (Nixon's overall health care reform proposal actually had many of its central elements, such as mandatory employer-purchase private health insurance, eventually incorporated two decades later into President Clinton's health care reform program, giving credence to the opinion of many political analysts that the US has a 1.5 party system that spans the spectrum from right to right of center.)

The HMO's of this early era were not, however, uniformly innovative in their approach to primary care. The flagship Kaiser Permanente plan of Northern California, for example, eschewed hiring GP's and, later, family physicians, preferring instead to feature internists, pediatricians, and internal medicine subspecialists as primary care providers. This decision to hire board certified specialists was in part driven by the desire to compete with office based physicians and avoid the criticism of second class medicine.

By the mid-to late 1980's, primary care had reasserted its presence on the US health care scene, but was still struggling to gain full acceptance. Family physicians were replacing the aging stock of GP's, but together FP's and GP's constituted only 13% of the total pool of practicing physicians. Many general internists and general pediatricians also occupied the primary care ecological niche, representing another 20% of physicians. Two-thirds of practicing physicians were non-primary care specialists. The average specialist physician earned twice as much or more in net income as the average primary care physician. Nurse practitioner and physician assistant programs had come into existence,
and were training modest numbers of primary care practitioners who faced widespread restrictions on their ability to practice independently from physicians. Many primary care practitioners strived to provide continuity and coordination of care for their patients, but this was not enforced by any administrative limitations on self-referral to specialists or requirements to formally register with a particular primary care practitioner.

When I graduated from medical school in 1985 and decided to train in family medicine, several medical school faculty admonished me for wasting a promising career in medicine and sentencing myself to a future of drudgery in primary care. No family physicians were included in the UCSF medical center’s clinical practice group at that time.

**And the Winner is, Primary Care (...or is it?)**

There is a popular saying in the US: 4 times out of 5, the right thing happens for the wrong reason. This seems to be the case for the sudden ascendance of primary care in the US in the 1990’s.

Leading policy analysts, blue-ribbon government commissions, prestigious private foundations, and groups of professionals and citizens have all in the past decade pronounced the wisdom of reorienting the US health care system toward more of a primary care foundation. Yet the most influential factor promoting a stronger role for primary care has been the actions of managed care health plans operating in a competitive market for health insurance. Although some enlightened managed care firms may, perhaps, manifest a deep appreciation of the full virtues of primary care, the most alluring feature of primary care for managed care firms has been its perceived utility as a means of containing costs.

**Managed Care Structures in the US**

Understanding how managed care has changed the dynamics of primary care in the US requires a basic understanding of the nosology of HMO’s. The first generation of HMO’s in the US were the non-profit plans such as Kaiser-Permanente, Group Health Cooperative of Puget Sound, and the Health Insurance Plan of New York. These were the traditional “prepaid group practice” models in which a single, large physician group provided care on a prepaid (i.e., capitated) basis to subscribers of the health plan. These plans became known as staff-model HMO’s or group-model HMO’s. In staff-model HMO’s, the plan directly employs physicians (e.g., Group Health Cooperative) (Figure 1). In the group-model, the plan contracts with a single, semi-autonomous physician group (e.g., the Permanente Group, which serves patients in the Kaiser plans) (Figure 2). As
mentioned above, these traditional HMO’s varied in the extent to which they promoted a primary care model of care. Although some embraced family physicians and encouraged continuity of care with a personal, primary care provider, others functioned more as large clinic operations (or “poly-clinics” in the European mode) and did little to emphasize primary care and continuity of care.

The traditional staff- and group-model HMO’s exemplify “vertical integration” of care. Under one organizational roof and common ownership, these plans consolidated all levels of care, from primary to tertiary care, and the facilities and staff necessary to provide this full spectrum of care.

An alternative to the traditional group- and staff-model HMO’s developed as a second generation of managed care plans in the 1970’s and 1980’s. These HMO’s, which have come to be known as “network” or “IPA (Independent Practice Association)” HMO’s, differ in several ways from the first generation HMO’s. The second generation HMO’s have not built vertically integrated systems under common ownership, but rely on contractual relationships to piece together the various elements of a full-service plan (what some observers have called “virtual integration” rather than vertical integration). These HMO’s contract with a variety of physicians in office practice, rather than employing their physicians directly or contracting with a single large group (Figure 3). Unlike the monogamous arrangement between the Kaiser plan and the Permanente Medical Group, physicians in second generation HMO’s may establish promiscuous contractual relationships with numerous HMO’s. The result of this more open HMO-physician relationship is a series of physician panels in the same community that overlap partially, but not completely, for patients covered by different HMO’s.

Although many second generation HMO’s were initially created by associations of physicians and hospitals as locally-based, non-profit organizations, most of these HMO’s have been purchased by large, for-profit commercial insurance plans. As these large, commercial insurers realized that they needed managed care products to compete in an increasingly price-sensitive insurance market, they bought up fledgling organizations and consolidated them into large corporations. Whereas the first generation HMO’s grew slowly over decades and built a cohesive practice culture among physicians who sought out these alternative systems, the second generation HMO’s have been referred to as “Instant Soup” HMO’s: just add water (or capital, as the case may be) to an assortment of physicians and hospitals, stir, and voila, an HMO! Most of the growth of enrollment in HMO’s in the past 10 years has been in these network/IPA style plans, and most of these plans have become for-profit, investor-owned entities during that time.
Adding to the confusion of comprehending the multiplicity of practice organizations developing in the US, physicians have responded to these network/IPA HMO's by creating some new practice structures at the provider level. One of the most common of these structures, especially in a "vanguard" managed care state such as California, is the Independent Practice Association. IPA in this case refers not to the type of managed care plan, but to a particular physician organization. (My apologies for the hopelessly convoluted language of US managed care!) An IPA in this sense of the term consists of a network of physicians who agree to participate in an association for purposes of contracting with HMO's and other managed care plans. Physicians maintain ownership of their practices and administer their own offices. The IPA serves as a vehicle for negotiating and administering HMO contracts. The IPA also accepts the capitation payment from HMO's and distributes these revenues to the physicians participating in the IPA.

The traditional group- and staff-model HMO's were not originally developed to control costs. Instead, they were designed to be more responsive to patient needs and interests and to provide physicians an alternative to the dominant entrepreneurial, fee-for-service private practice system. As cost containment became a more pressing policy issue, however, the traditional HMO's recognized that they had many assets in this regard. They paid their physicians on a salaried basis, had prospective budgets, regionalized facilities, and tended to operate their hospitals at near-maximal occupancy. In essence, they had a handle on managing supply-side capacity. In fact, these HMO's were the closest thing in the US to a national health service, with similar cost-control tools at their disposal. Because of this situation, innovation in primary care became less of a central issue for cost control in these organizations. Most consistently, these HMO's simply kept their staff of specialists fairly lean.
The second generation HMO's faced a different situation. They had less control over capacity in their loosely assembled provider networks, had little means for enforcing global budgets, and had not steeped their physicians in a practice culture that respected parsimony. Their cost containment tools became cumbersome, case-by-case utilization management, price discounting, and most germane to primary care, use of primary care "gatekeepers" paid by capitation.

The Gatekeeper Structure

A typical HMO capitation arrangement in California is shown in Figure 4. An HMO pays an IPA a capitation sum for each of the plan’s subscribers who enrolls with a primary care physician in that IPA. (In US managed care parlance, the HMO pays a “pmpm” (per member, per month) fee for every “covered life” (enrolled patient).) Typically included in this capitation payment are funds to pay for specialty consultant visits and procedures as well as for laboratory, radiology, and related ancillary services. Surpluses in these referral “risk pools” are typically returned (at least in part) to primary care physicians, augmenting the net income of these practitioners. In many managed care plans, these incentives and bonuses may comprise a substantial portion of the physician’s ultimate income, creating a potentially powerful incentive to restrain referrals.

Figure 4
This shift to capitation linked to an individual primary care physician marked a radical departure from business as usual for patients and physicians in the US. All of a sudden, several things happened: patients in these plans had to register with a primary care physician. Moreover, patients now had to initiate all of their care with this primary care physician. No more would patients be able to exercise unlimited choice and directly shop their organ-specific symptom to the specialist of their choice.

Undeniably, this organizational shift brought tremendous potential to empower primary care physicians and elevate the role of primary care in the US. In theory, primary care physicians would be better able to coordinate referral services for their patients, avoiding inappropriate self-referrals; no longer would patients disappear into the black hole of specialty care, only to return several months later with a variety of scans, incisions and missing organs. Primary care physicians would be liberated from prejudicial fee-for-service pay schedules that failed to reward talking and management services. Primary care physicians could exercise greater flexibility and control over services by managing a capitated budget. Primary care physicians would have an explicit panel of patients, and could begin to practice population-based medicine. The Golden Age of Primary Care might finally arrive!

Unfortunately, the peculiarities of the US system have left many primary care physicians worrying whether it’s an era of Fools Gold. Although some managed care organizations may be aspiring to implement a visionary model of primary care, research has failed to document a systematic improvement in primary care practices in HMO’s compared with the more traditional fee-for-service sector. The liabilities of a fragmented and non-universal system of financing health care also undermine potential progress on the primary care front. Primary care physicians, rather than relishing a revival of their calling, often appear beleaguered by the pressures of an unstable competitive market, questionable financial incentives, and threats to their autonomy.

In the following section, I will highlight recent research on the current status of primary care in the US, including presenting some recent findings from the work of our team at the UCSF Primary Care Research Center.
Evidence on Primary Care Performance in the Changing US System

**Primary Care-ness**

Several research groups have developed instruments relying on patient self-report to evaluate the degree to which patients receive care that satisfies the essential elements of primary care, such as continuity, comprehensiveness, coordination, accessibility, and effective communication or “partnership.” These instruments have been dubbed “primary care-ness” measures.

Dana Safran and colleagues have used these measures to compare the primary care-ness of HMO and fee-for-service care in the US. Their first study, conducted in the early 1990’s, found that HMO’s did not achieve uniformly higher marks on primary care scores. A more recent study, conducted within the past 2 years and as yet unpublished, has found similar patterns.

One of the most basic elements of good primary care—continuity with a personal practitioner—is frequently undermined in the US by involuntary disruptions in insurance coverage. One disruption is complete loss of health insurance. Patients may lose their employment-based private insurance if they become unemployed, self-employed, or change jobs. Patients also frequently move in and out of coverage by the public Medicaid insurance program. A forthcoming study shows that two-thirds of new Medicaid enrollees lose their Medicaid coverage within 12 months.

Even without completely losing insurance, patients may face severance of their primary care relationships. Many employers offer their employees only a single managed care plan. Employers may change the managed care plan they offer in response to changes in premium prices. A new plan may contract with a different array of primary care physicians in a region, resulting in a patient being forced to select a new physician from this different provider panel. One recent study found that 25% of patients in managed care plans said that they had been forced to change primary care physicians within the past 2 years because of “changes in their insurance plan.” (Flocke et al., 1997). The patients who had experienced forced discontinuity rated their current physician significantly lower on several primary care-ness measures than their counterparts who had not been forced to change their primary care physician.

*The Primary Care Physician’s Experience of Managed Care*

Studies have suggested that physicians overall in the US are experiencing diminishing satisfaction with the practice of medicine. A 1995 survey of US physicians...
(including both primary care physicians and specialists) found that 55% of physicians believed that the health care system became worse in the past year (Donelan et al., 1997). Physicians practicing in states with high managed care market penetration were much more likely to rate the system as getting worse than physicians in low managed care penetration states. In this same study, two-thirds of physicians reported problems with "movement of patients in and out of your practice because of changes in insurance coverage," and more than half reported problems with limitations or administrative hassles in referring patients to specialists. Another recent study conducted among physicians in Minnesota found similar patterns (Borowsky et al., 1997). Many physicians expressed dissatisfaction with utilization authorization procedures and other polices to restrict care in managed care plans.

A 1995 survey of primary care physicians also found that physicians tended to be less satisfied with the care they were able to provide patients covered by capitated managed care contracts than with the care they could provide to non-capitated patients (Kerr et al., 1997). The primary care physicians were less satisfied with the quality of care, their ability to treat patients according to their own best judgment, and their ability to obtain specialty referrals for capitated patients.

Some of our recent research at UCSF suggests that part of this dissatisfaction may be related to the new financial incentives primary care physicians are experiencing in managed care plans.

In 1996, we surveyed nearly 900 primary care physicians in practice in California. Over 90% of these physicians either worked at a group model HMO such as Kaiser or had at least 1 contract with an IPA or network-model HMO. We questioned physicians about the types of financial incentives they were experiencing under managed care. Over one-third of physicians reported that they had some sort of bonus or incentive arrangement over and above their base salary, capitation, or fee-for-service payment. These incentives were linked to different performance measures. 14% of all physicians had an incentive based on restraining use of referral and ancillary services, and nearly 20% had an incentive related to their overall productivity. 23% also had an incentive targeted to measures of quality of care or patient satisfaction. For three-quarters of physicians experiencing a bonus incentive, their individual performance—and not just their overall physician group’s performance—factored into calculation of their bonus.
We also asked physicians about whether they felt pressured about certain aspects of their practice: scheduling many visits per day, not referring patients to specialists, and not fully informing patients about treatment options. For each of these types of pressures on their practice, we asked physicians to indicate one of the following responses: “don’t experience,” “experience it but it doesn’t compromise care,” or “experience it and it compromises care.” Figure 5 shows the distribution of responses to each of these questions. Overall, a substantial proportion of primary care physicians reported pressures that they believed compromised care in these areas.

We then examined the association between bonus incentives and the experience of pressures in practice. In multivariate models that controlled for a variety of practice and physician characteristics, the presence of a bonus was one of the factors most strongly associated with reported experiences of pressures that compromised care. Presence of a referral-related incentive predicted the experience of high pressure to limit patient referrals, and the presence of a productivity incentive predicted the experience of high pressure about seeing
a large number of patients. Some of these bonus incentives were also strongly and negatively associated with primary care physicians’ sense of satisfaction in their work.

<table>
<thead>
<tr>
<th>Type of Pressure</th>
<th>Referral Bonus</th>
<th>Productivity Bonus</th>
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<tbody>
<tr>
<td>To Limit Referrals</td>
<td>0.24**</td>
<td>0.15</td>
</tr>
<tr>
<td>To See More Patients</td>
<td>-0.10</td>
<td>0.19*</td>
</tr>
</tbody>
</table>

*p<.05

**p<.01

Figures are regression coefficients predicting pressure, on a scale of 1 (no pressure) to 3 (pressure comprising care).

Another recent, unpublished study has also revealed the flip side of the coin for the new, expanded role for primary care physicians. In this physician survey, many primary care physicians reported that they felt pressured by managed care policies that discourage referrals to expand their scope of practice beyond a level that was comfortable for them (St. Peter et al., 1997). Nearly one-third of primary care physicians reported that their scope of practice had increased in the past 2 years, and 41% of these physicians believed that their scope was now “greater than it should be.”

Our own team’s survey of primary care physicians also documented another dynamic that may be interfering with physicians’ ability to fully appreciate their new role. Although concerns about excessive supply and potential unemployment among physicians have been most acute for specialists, primary care physicians have not been completely immune to the unsettling dynamics of the competitive market. We found that almost one quarter of primary care physicians in office-based practice in California had experienced a managed care plan either denying a contract application or terminating an existing contract. Concerns about job stability and control over one’s practice in the managed care market have not left primary care practitioners untouched.

*The Empire Strikes Back*

Gatekeeping has become a central issue in a mounting public backlash against managed care in the US. In my opinion, managed care in the US deserves sound criticism.
for its fixation with the corporate bottom-line, its lack of public accountability, and its scandalously excessive rates of administrative overhead and profits (many plans operate with only 75 cents of every premium dollar being spent on medical care). However, gatekeeping has become a lightning rod for public dissatisfaction with managed care. Americans believe that they have a constitutional right to life, liberty, and the pursuit of the specialist of their choice. They resent new restrictions on their access to care, especially changes that compromise privately insured patients’ previous ability to directly refer themselves to a specialist.

Specialist physicians have not, to say the least, discouraged public resentment about these managed care arrangements. They have worked both through political action and public policy (e.g., laws that require women to be able to have “direct access” to obstetrician-gynecologists without needing a referral from a primary care physician) and through research. US medical journals now frequently carry research articles demonstrating that cardiologists are better than generalists at treating patients with myocardial infarction, or that patients with rheumatoid arthritis fare better if a specialist is involved in their care. This “Empire Strikes Back” literature tends to focus on single disease entities, rather than comparing specialist and generalist care for the whole patient and the patient’s full complement of medical and psychosocial needs.

A new development that is posing a major threat to primary care in the US is the phenomenon of “disease management.” Disease management initially was the brainchild of the pharmaceutical industry. Pharmaceutical firms marketed medical care packages to take on management of specific chronic diseases, such as asthma and diabetes. These programs did not catch on terribly well. Many providers and organizations suspected that pharmaceutical companies were more interested in promoting their own drug products for these conditions than in pursuing a non-denominational approach to enhancing the quality of care.

However, organizations other than pharmaceutical manufacturers have now developed disease management programs, and these new programs are beginning to catch on with the managed care industry. Typically, these programs are organized around a team of practitioners headed by a physician specialist and include nurse case managers, nutritionists, health educators, and other personnel--but not primary care physicians. The programs focus on single chronic disease entities, such as congestive heart failure, and remove care of these conditions from the primary care setting. Often, payment for these programs is “carved out” of the primary care capitation fee to the primary care physician and transferred to the disease management team. Many of these programs tout their
success at reducing hospitalization rates and costs and improving functional status, although most documentation consists of internal evaluations performed by the disease management firms themselves rather than rigorously performed, peer-reviewed published evaluations.

These programs represent a centrifugal model of care in which patients with chronic disease are pulled away from the primary care practitioner and into the specialist's domain—at least for the particular identified chronic condition. The fact that many of these types of patients forget to limit their chronic ailments to just one condition, and tend to have not just heart failure but also diabetes and depression and chronic lung disease and osteoarthritis, raises obvious questions about the success of these disease management programs in caring for the whole patient. However, there is a perception in some quarters that primary care providers have not performed adequately in the routine care of patients with chronic disease, and these specialty-focused models are marketed as superior products in the managed care environment. Few organizations seem to have thought creatively about more centripetal models of collaborative care that keep care based in the primary care setting and harness specialty and interdisciplinary resources to support primary care practitioners in their management of patients with chronic disease.

Diamonds in the Rough:

Some positive models of innovative primary care in the US

Despite these dispiriting trends in the US, there are some instances of good things happening in primary care. (I must confess, however, that I solicited the opinions of several experts in the area of health policy and primary care in the US to help me identify some shining examples that would impress an international audience. I needed to take an extra Prozac in response to the difficulty everyone had in identifying such examples. If truth be told, I learned about the first of the following models while attending a meeting in Canada sponsored by Michael Rachlis.)
The Community Medical Alliance

The Community Medical Alliance (CMA) of Boston was developed in 1989 as an alternative model for caring for patients with severe disability, particularly patients with quadriplegia. Dr. Bob Masters, the director of this program, observed the extreme fragmentation of care provided these patients under the conventional Medicaid program in Massachusetts, with vast amounts of money being spent on things like hospitalization for severe urinary tract infections that could have been managed at home if they were detected sufficiently early in their course. The CMA’s organized a primary care team that relies on nurse practitioners as front-line providers in the patients’ homes, with back up from primary care physicians. Nurse practitioners serve as case-managers for panels of 25-50 patients, and function as “gatekeepers” to facilitate access to early interventions rather than to restrict services. Various other personnel are included, such as social workers and physical therapists. Masters negotiated with the Medicaid program to have care paid for on a capitated basis, allowing the primary care team to control financial resources and reallocate them in a more efficient manner. The contracts include limited risk sharing by the program and reasonably plentiful payment levels. The program proved successful at improving quality and value, and has expanded to include patients with advanced AIDS.

Certain features of CMA are important to note: The program has remained non-profit and small, with a case load of approximately 400 patients. Because of its relatively small size, it has not become a significant threat to specialists and hospitals because it has not diverted major financial sums away from these sectors relative to the overall medical care expenditures in the region. Enrollment by patients is voluntary. CMA was created by individuals committed to a clear vision of a better model of primary care, and has remained under their leadership.

Group Health Cooperative of Puget Sound

One of the oldest and most respected of the traditional staff-model HMO’s in the US is Group Health Cooperative (GHC) of Puget Sound. Located in the Seattle area and serving a population of almost one-half million enrollees, GHC was founded as a non-profit, consumer-directed cooperative. It recently merged with the Kaiser-Permanente system.

GHC has become a model of a “centripetal” approach to chronic disease management (Wagner et al., 1996). GHC has attempted to take advantage of the capitated nature of enrollment to define registries of patients with chronic diseases and tailor
interdisciplinary, primary care based models to these patients’ needs. These models, termed “Population-Based Management,” begin by identifying patients and then work with practitioners to develop and implement evidence-based care guidelines, build interdisciplinary teams to augment care from an individual primary care physician or nurse practitioner, and organize group visits and educational sessions. Many of the elements of this program are derived from European innovations such as the UK “chronic care mini-clinic” and the German primary care based group education sessions. One of GHC’s initial population-based models had focused on diabetes care.

Dr. Ed Wagner of GHC’s Center for Health Studies has commented, “[There is] genuine uncertainty among managed care leaders as to whether to enhance their primary care system’s ability to provide chronic illness care, or to delegate care to specialized care providers such as medical specialists or case managers for various patient groups....Environmental pressures for the [specialist] approach come from the overabundance of specialists, increasingly intense marketing of ‘disease management’ or carve-out programs, and cultural beliefs in the superiority of specialists over generalists.” GHC is attempting to demonstrate the advantages of resisting the specialized model and integrating chronic disease management into the primary care team.

Lessons from the US Experience

What are the lessons in all of this? The first lesson is that a culture must exist or be developed that values and supports primary care, particularly among the public and among practice organizations. It is not easy to wean patients and practice organizations from a long-standing over-dependence on specialty care, especially when it threatens the self-interests of specialists.

Second, patients need to be convinced that they will stand to gain something under a system that insists that they register or enroll with a primary care physician and that insists that the primary care physician help to coordinate their care. Otherwise, the primary care “gatekeeper” (such an unhappy choice of words) runs the risk of being perceived as simply the gateshutter, deterring patients from desired specialty care.

Third, a sure way to undermine public confidence in, and physician enthusiasm for, a capitated, primary care model is to saddle it with ethically suspect financial incentives and to place it under the auspices of unabashedly profiteering organizations.
A corollary of this lesson is that true innovation in primary care is unlikely to occur in a context of organizations fixated on immediate cost savings rather than on long-term investment in enhanced models of care. Hard work, long term vision, and the buy-in of practitioners are required to shape better models of care.

The final lesson is that empowerment of primary care by giving primary care providers control of a capitated budget may not always have the desired effect. Money may be power, but it also may mean having to act an awful lot like an insurance company, with the attendant burdens of administrative and budgetary-driven decisions for individual patients.

Dickens best sums up the peculiarly ambivalent state of managed care and primary care in the US:

"It was the best of times, it was the worst of times, it was the age of wisdom, it was the age of foolishness, it was the epoch of belief, it was the epoch of incredulity, it was the season of Light, it was the season of Darkness, it was the spring of hope, it was the winter of despair, we had everything before us, we had nothing before us, we were all going direct to Heaven, we were all going direct the other way."

For a primary care physician in the US, the experience of managed care is just such a lesson in the “superlative degree of comparison only.” Primary care physicians are loved, and they are defiled. They are the answer to the problems of too easy access to specialty care, and they are the cause of the problem of too difficult access to specialty care. They are empowered by controlling capitated budgets, and they are damned for controlling budgets. They have been liberated from the evil temptations of fee-for-service, and have been seduced by the wickedness of financial incentives to limit care. They are expected to compensate for a seriously delinquent system of financing health insurance, and they are victims of the grave limitations and discontinuities of the fragmented financing system. They are the type of physician everyone really needs, unless of course the person is actually ill, at which point a more qualified specialist should take over.

We await the unambiguously golden age of primary care in the US.
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PRIMARY CARE REFORM IN THE UK

Angela Coulter, PhD
King’s Fund


The primary care-led NHS

The universal problems in health policy - how to cope with increasing demands resulting from demographic change, technological advance and the gap between public expectations and willingness to pay - are just as intractable in a cash-limited, taxation-funded system such as the British NHS as they are elsewhere. The recognition that countries with more highly developed systems of primary care tend to have lower health care costs (Starfield 1994) has contributed to the widespread search for ways of shifting the balance of power and resources from secondary to primary care. The 1990’s have seen a number of policy initiatives in the UK aimed at controlling demand for expensive secondary care services by investing in primary and community care in the hope that this will deliver greater efficiency. In recent years Department of Health rhetoric has been stressing the need to develop ‘a primary care-led NHS’. This paper examines what is meant by a primary care-led health service in the British context, traces its evolution and achievements and speculates on future developments.

General practice in the UK

The relatively well-developed primary care system, with general practice as its cornerstone, has always been considered one of the great strengths of the British National Health Service. General practitioners (GP’s) are independent contractors and patients can choose to register with any GP in their locality. The registered list system facilitates co-ordination of services and continuity of care and provides population registers for use in screening and other preventive services. The GP is responsible for general medical care and for acting as a gatekeeper to the rest of the service, referring patients to hospital-based specialists or community health services (nurses, midwives, physiotherapists, occupational therapists, speech therapists, counsellors, dicticians, podiatrists, social workers, etc.) when necessary. Virtually the whole population is registered with GP’s who retain a monopoly of medical care outside the hospital. In contrast to hospital doctors who work as salaried employees, GP’s are self-employed independent contractors. The majority work in group practices on a partnership basis, owning their own premises and employing administrative and some nursing staff. Of the 29,000 GP’s in England, about 10% work as single-handed practitioners, 47% are in partnerships of two to four doctors, and 43% work in groups of five or more. The average list size per GP is 1,900 registered patients. On the whole patients do not have direct access to non-emergency hospital or community health services, except via referral from their...
The OP’s role as gatekeeper to hospital care is one of the main reasons why the NHS is cost-effective relative to other systems of health care delivery.

However, during the 1980’s it became clear that demand for health care was outstripping the supply of services. The most obvious manifestation of the mismatch between demand and provision was lengthening waiting lists, but there was also growing awareness of unexplained variations in practice patterns. Studies of OP’s’ prescribing patterns and referral rates drew attention to rising trends and unexplained variations between general practices, suggesting inefficiencies and a lack of consensus among doctors about appropriate treatment strategies (Acheson 1985, Forster and Frost 1991). Policy analysts pointed to perverse incentives in the system which tended to fuel demand and inefficiency (Enthoven 1985, Maynard et al 1986). GP’s did not have to consider the cost implications of their decisions to initiate treatment or refer patients to hospital specialists and the system of funding hospitals according to bed provision rather than throughput did little to reward efficiency.

**The internal market**

Following a review of alternative methods of funding and organizing health services, the Thatcher government opted to preserve the existing taxation-based funding system and to concentrate on various methods to increase efficiency. This was to be achieved by devolving responsibility, promoting competition and encouraging consumerism. The main mechanism was the introduction of an internal market in which health care purchasing was to be separated from the provision of services (Department of Health 1989). The internal market was to be established by encouraging hospitals and community units to become self-governing provider trusts. In this way they were to be separated from direct management by the district health authority (DHA), allowing them to control their own finances, staffing resources and capital investment. Meanwhile, not one but two different types of purchaser were introduced: DHA purchasers and GP fundholders. These represented two different models of purchasing. Whereas DHA purchasers were exhorted to carry out formal needs assessments as the basis for their purchasing plans and to balance priorities for the complete range of health care needs in a large (approximately 500,000) population, GP fundholders were expected to respond to their patients’ demands by purchasing a selected range of services for the relatively small practice population (approximately 10,000) patients.

**GP fundholding**

Purchasers were supposed to choose between competing provider trusts, agreeing service contracts specifying price, volume and quality of care. DHA purchasing was similar to the traditional top-down planning model, but with the addition of an explicit expectation that GP’s and local people would be consulted about priorities. GP fundholding, on the other hand, was bottom-up and demand-led, with responsiveness to patients as its key characteristic. The scheme meant that fundholders’ prescribing and outpatient referral costs were brought
within a cash-limited budget for the first time. The budget also covered admissions for elective surgery, diagnostic tests and investigations, community health services and paramedical services, but accident and emergency services, medical and psychiatric admissions, maternity care and patients with expensive health care needs were excluded.

The GP fundholding scheme was introduced in April 1991 on a voluntary basis with only 300 practices, whose registered patients comprised 7% of the population, entering in the first wave. Despite initial opposition from the British Medical Association, the opposition parties and the majority of GP’s, fundholding rapidly gained favour. By April 1996 13,400 GP’s in 3,700 practices were fundholding. Between them these practices catered for 52% of the population of England. Initially the scheme was restricted to practices with registered lists in excess of 11,000 patients but this lower limit was gradually decreased in response to pressure from GP’s in small practices who felt excluded. By 1994 smaller practices and single-handed GP’s were allowed to group together to hold a joint budget or multi-fund. Although the scheme represented a substantial transfer of resources to GP’s, fundholders had purchasing power over only approximately 20% of the total hospital and community health care costs for their patients, the remainder being in the control of the DHA. Nevertheless the emphasis was on competition between purchasers rather than collaboration. The Conservative government, which introduced the scheme, and fundholders themselves, liked to stress the fact that it strengthened GPs’ autonomy and released them from bureaucratic constraints imposed by DHA’s. Critics argued that it led to fragmentation of services and increased inequity, since fundholders’ were able to negotiate reduced waiting times and improved access arrangements for their patients.

In announcing their new policy drive ‘towards a primary care-led NHS’ (NHS Executive 1994), the UK government made it clear that they were primarily interested in strengthening GPs’ role as purchasers of secondary care services. The fundholding scheme was to be extended and the ‘benefits’ of direct involvement in purchasing health care for their patients were to be made available to all GP’s. The belief that GP’s were well placed to define and articulate the health needs of their patients had some force, given their responsibility for providing comprehensive and continuous services to defined populations, but three years into the scheme the available evidence suggested that GP fundholding had had only a marginal impact on the pattern of services (Coulter 1995, Petchey 1995, Audit Commission 1996). Despite incentives to restrict prescribing and referral costs, fundholding GP’s had not modified their behaviour very significantly. Prescribing costs rose less steeply among fundholding practices in the first two years of budget-holding, but this advantage was not sustained in the longer term (Stewart-Brown et al 1995, Harris and Scrivener 1996, Rafferty et al 1997, Gosden and Torgerson 1997) and referrals continued to rise in fundholding practices although the increase was slightly less steep than in non-fundholding practices (Surender et al 1995). Fundholders did manage to secure shorter elective surgery waiting times for their patients, an advantage which was seen as unfair by doctors and patients outside the scheme (Dowling 1997). Critics argued that this arrangement increased inequity and led to a two-tier service. Despite this, the ‘primary care-led NHS’ strategy announced in 1994 underlined the government’s confidence in fundholding and signalled their intention to place a greater proportion of health service funds under the direct control of GP’s.
Following this announcement, a number of ‘total purchasing’ experiments (TPP’s) were launched in which GP’s at selected sites were encouraged to take over the entire budget for hospital and community health services. Since existing legislation did not allow for a complete hand-over of budgets, the DHA retained ultimate responsibility requiring the GP’s to work collaboratively with the health authority. In theory this collaborative arrangement could combine the best of top down, strategic purchasing for the needs of a population, with a bottom up approach responding to the demands of individual patients. Currently 92 TPP’s are under evaluation, the majority being multi-practice groupings with a mean population size of 35,000. Early evidence from the pilot schemes suggests that GP’s are enthusiastically tackling some previously intractable problems, for example trying to stem the rise in emergency admissions, or securing improvements in co-ordination of care for patients with long-term needs, but they have been reluctant to take on responsibility for the full range of services and co-ordination between multi practice groups and the DHA has not always been easy (Mays et al 1997).

GP commissioning

While fundholding was absorbing the energies of a growing number of GP’s, many remained implacably opposed to the scheme. Some of these began to work together with local health authorities to influence DHA purchasing plans. A group of non-fundholding or ‘commissioning’ GP’s was formed to represent their interests. The National Association of Commissioning GP’s has defined commissioning as ‘the process of gathering and analysing the wants and needs of a population for which services are to be purchased, and of monitoring those services as they are delivered’ (NACGP 1996). This is distinct from purchasing which they define as ‘the interpretation of commissioning plans and the construction and implementation of time-related purchasing plans’. Thus commissioning is intended to be strategic, population-focussed, and collaborative with the health authority, whereas purchasing is primarily concerned with contracting and resource allocation for specific patient groups. According to these definitions those involved in purchasing are also commissioners, but it is possible to be involved in commissioning without having responsibility for purchasing and without having a delegated budget.

By 1996 a number of different models of purchasing or commissioning were in existence, from health authority-led schemes in which GP’s were merely consulted but had no budgetary responsibility, through formal arrangements for collaboration involving indicative budgets, to fundholding where budgets were delegated to GP’s. The Labour Government, which came to power following the May 1997 general election, had committed themselves while in opposition to the abolition of the internal market. They were keen, however, to retain GP involvement in commissioning, but they wanted to avoid the perceived inequalities of the fundholding scheme. The new Secretary of State announced his intention to begin a debate on commissioning models for the future. While remaining committed to the development of a form of collaborative commissioning involving health authorities and GP’s, the Government had no organisational blueprint. The intention was to evaluate the existing models and to pilot some new variants, prior to deciding which forms of commissioning should be encouraged.
Teasing out the relative risks and benefits of the different models will not be an easy task, but the opportunity to learn from these natural experiments poses an exciting challenge to policy analysts and health services researchers.

Features of commissioning models

The different purchasing or commissioning models vary according to a number of key features which can be classified on three main dimensions:

a) degree of budgetary control, where the main difference is between those in which budgets are delegated to GP’s and those where the health authority retains budgetary control, but practices are encouraged to participate in decision-making;

b) population coverage, which can vary from a single practice through multi-practice groups, to the division of the health authority into geographical patches which do not necessarily coincide with practice boundaries;

c) range of services included in devolved budgets, which can be limited to prescribing and community nursing only, or selected hospital and community services as in standard fundholding, or the complete range of hospital and community health services as in total purchasing.

Any model of GP-led commissioning carries potential risks as well as potential benefits. These are summarised in Table 1:

<table>
<thead>
<tr>
<th>Benefits</th>
<th>Risks</th>
</tr>
</thead>
<tbody>
<tr>
<td>GP leadership and enthusiasm</td>
<td>doubts about sustainability</td>
</tr>
<tr>
<td>patient centred</td>
<td>GP as rationer</td>
</tr>
<tr>
<td>responsive</td>
<td>increased inequalities</td>
</tr>
<tr>
<td>local knowledge</td>
<td>lack of accountability</td>
</tr>
<tr>
<td>continuity of care</td>
<td>fragmentation of services</td>
</tr>
<tr>
<td>understanding of individual needs</td>
<td>lack of population focus</td>
</tr>
<tr>
<td>develop new services</td>
<td>stimulate new demands</td>
</tr>
<tr>
<td>fewer unnecessary interventions</td>
<td>reduced access to specialist services</td>
</tr>
<tr>
<td>incentives to control costs</td>
<td>reduced cost-effectiveness</td>
</tr>
</tbody>
</table>
Degree of budgetary control

The enthusiasm with which many GP’s had embraced fundholding confounded the sceptics. It was clear that some GP’s relished the opportunity to get involved in non-clinical activities such as contract negotiations and budget monitoring despite the substantial increase in their workload that this represented. For some it seems to have provided an answer to the mid-life malaise that afflicts GP’s faced with up to 35 years in the same job and few opportunities for career development, but a substantial number did not want to accept direct responsibility for delegated budgets. Many had ideological objections to the scheme (Robinson and Hayter 1995). Some argued that time spent on budget management had a detrimental effect on GP’s’ ability to provide good clinical care. Others felt they did not have the requisite skills in financial management. Experience of non-fundholding commissioning groups demonstrated that it was possible to involve primary care staff in setting priorities without delegating budgetary control (Black et al 1994), but the incentives for involvement in these non-fundholding schemes were weaker, raising doubts about long-term sustainability.

Budgetary control implies a need to balance population needs against individual needs. This can cause role conflict for the GP. Direct involvement in decisions about resource allocation places the GP in the role of rationer, a task with which many GP’s feel uncomfortable because it conflicts with their preferred role as patient’s advocate (Robinson and Hayter 1995, Ayres 1996). Patients may be less willing to accept advice that they do not need treatment or referral if they believe the GP’s decision is influenced by budgetary considerations. Some GP’s feared this would undermine the doctor-patient relationship with possible adverse consequences on the effectiveness of clinical care (Cornell 1996).

Transaction costs are high when budgets are devolved to numerous small-scale purchasers. GP fundholding has led to a dramatic increase in practice administrative costs, as well as increased costs to the providers and to the DHA’s responsible for overseeing the scheme. These can be balanced against increased incentives for practices to control demand by restricting referrals or investing in practice-based facilities as a substitute for more expensive secondary services. So far, while there is no doubt that it has increased the level of practice-based investment, there is little evidence that the fundholding scheme has succeeded in controlling demand. Indeed by raising expectations and providing for needs that were previously unmet, it may have increased it.

Fundholders have used their financial leverage to achieve a number of beneficial changes, including investing in practice-based services such as physiotherapy, counselling and diagnostic equipment, but the relative cost-effectiveness of these on-site services is questionable (Coulter 1996). It is also clear that fundholders have secured beneficial access for their patients, at least in terms of waiting times and new practice-based services. The fact that they hold a budget has given them some leverage over secondary care and for the most part they have used this to improve access rather than seriously to challenge the pattern of provision. Some efficiency savings have been achieved, but at a cost. In 1996 the Audit Commission attempted to calculate a balance sheet. They estimated that fundholders had made savings worth £206 million, but practice management costs had increased by £232 million (Audit Commission 1996).
These costs would be justified if they had led to substantial improvements in the quality of care, but it is hard to demonstrate that this is the case and few studies have addressed the issue. There is little evidence of an impact on clinical effectiveness. Few fundholders have dared to challenge the clinical decisions of their consultant colleagues (Douglas et al 1997). The Audit Commission found that most fundholders were not making full use of the increasing body of knowledge about clinical effectiveness to change the way they commission. Of the fundholders surveyed, only a third said that their purchasing plans had been influenced by literature on evidence-based medicine (Audit Commission 1996).

Financial risk resulting from unpredicted demand is greater when the population pool is small. Perceived wisdom, based on the experience of American HMO's, suggests that purchasing for populations of less than 50,000 involves punitive transaction costs and unmanageable risk (Sheffler 1989), although this view has been challenged (Weiner and Ferris 1990). Models have been devised for spreading the risk over 3-5 years, but these have not yet been tested (Bachmann and Bevan 1996). Attempts to devise a resource allocation formula for fundholding which would be robust at the practice level have so far proved unsuccessful (Sheldon et al 1994). In the meantime fundholders' budgets have been based on a mixture of capitation allowances and historic costs and there have been allegations of over-funding relative to DHA allocations for the patients of non-fundholding practices (Dixon et al 1994). If devolution of budgets is to continue, strategies will have to be devised for transparent and fair resource allocation and for managing variability in utilization and unpredictable demands on the budget (Martin et al 1997).

Population coverage

A commonly stated advantage of involving GP's in the commissioning process is that they are closer to patients and therefore can help to ensure that services take account of patients' needs and preferences. This assumption that GP's' views and priorities are congruent with those of their patients is still an act of faith - few studies have investigated concordance between patients' views and those of GP's and fundholders have been slow to establish formal mechanisms for consulting their patients (Audit Commission 1996). The new locality commissioning pilots which the Government intends to set up from April 1998 will cover much larger populations than the average fundholder. These new commissioning groups, which will cater for populations of more than 50,000, will have pooled prescribing budgets and will be expected to work in co-operation with health authorities to commission hospital and community health services. Larger scale commissioning groups may turn out to be more cost-effective than purchasing or commissioning by individual practices, but it may be more difficult for larger groupings to secure consumer involvement. While patients might find it easy to identify with their own general practice, aggregates of practices or localities may be less meaningful to them. Much will depend on the extent to which the localities coincide with 'natural communities', for example a small town or a defined part of a city or larger urban area.
A population approach to health commissioning requires some knowledge of epidemiology and access to data on the distribution of disease. GP-led commissioning or fundholding is almost always based on single practices or clusters of practices, but much health data, for example those used to assess health needs, are based on electoral wards, i.e. geographical boundaries rather than practice boundaries. Because patients can choose which GP to register with, practice boundaries do not necessarily fit into ‘natural’ communities, nor are they coterminous with local authority boundaries used by social services and other agencies. Coordination of information sources can be especially difficult in urban areas, where practice selection effects operate more powerfully. Few GP’s are trained in epidemiology or population sciences. Most have had little experience in manipulating data. A demand-led system increases the likelihood that the focus will be on individual needs at the expense of population concerns and equity.

In view of strong popular attachment to the ideal of a universal health service accessible to all according to need, the suggestion that fundholding introduces greater inequity into the system has been politically damaging and has caused considerable public antipathy to the scheme. Fundholding has tended to attract well organised practices from better-off parts of the country, with inner city practices particularly under-represented (Audit Commission 1995). The government’s intention is that the new locality commissioning pilots should be established in places where fundholding or GP commissioning has not yet taken off, but there is a real risk that GP’s and practice staff working in ‘difficult’ areas will not have the time or the inclination to get involved and that their patients’ needs will be less well catered for than those whose GP’s are involved in commissioning or fundholding.

There are concerns that fundholders’ patients benefit at the expense of patients of non-fundholders, for example in shorter waiting times as a result of their ability to jump the queue, or practice-based consultant clinics which mean that the specialist is less often available in the hospital clinic. It is also true that fundholding can have a destabilizing effect on local services by contracting with private providers, for example, for pathology services, thus removing resources from local hospitals and causing a leakage of NHS funds into the private sector. However, getting ‘a better deal’ for their patients is a main motivator for GP’s involvement in purchasing. Increased inequity in access to care may be an inevitable consequence of devolving budgets to the practice level. Locality commissioning involving larger practice groups may avoid some of this perceived unfairness, but at the expense of reduced incentives for GP’s to get involved.

Range of services

In absolute terms the appropriate population size for commissioning depends on what services are to be commissioned. One argument, based on theories of ‘epidemiological stability’, is that community nursing and other community health services, elective surgery and outpatient facilities are logically purchased at practice level, while most other secondary care services, including accident and emergency and maternity services, may better be purchased under block contracts by organisations covering populations of around 300,000, leaving tertiary and
more highly specialised services to be covered at a ‘regional’ level (roughly 1 million pop.) (Murray 1993).

Effective purchasing requires a wide range of skills, including needs assessment and planning, contracting, monitoring and performance management, accounting and budget management. Beyond an understanding of the processes of commissioning, some specialist knowledge is required to make strategically coherent purchasing decisions. This knowledge may not always be vested in general practice. For example, people with learning disabilities have special needs of which their GP’s may not always be aware (Howells 1996). The arguments for restricting the range of services purchased at a practice or locality level are based on assumptions about the level of expertise required to purchase effectively. Patients with complex needs, such as those with long-term mental illness, may not be best served by a decentralised system where the risk of service fragmentation may be greater. On the other hand, if the GP or primary care professional is to act as care manager helping these patients through the maze of services, it may help if he or she has sufficient leverage to ensure that the patient gets appropriate care. Balancing the needs of the individual and the population is never going to be easy.

**Future developments**

The current policy concern to shift the balance of care from secondary to primary settings is led by a desire to contain rising health care costs. To date there are few signs that giving secondary care budgets to GP’s achieves the desired shift. There is a real risk that GP-led commissioning will encourage responsiveness at the expense of appropriateness and cost-effectiveness. Some analysts argue that it is too early to draw conclusions from the fundholding experiment (Gosden et al 1997). The new emphasis on evaluation is welcome - the previous Government refused to fund formal evaluations of the 1991 reforms - but some are sceptical about the genuineness of the Labour Government’s espousal of evidence-based policy-making.

Meanwhile even more radical developments are on the horizon with the introduction of legislation allowing for deregulation and merged budgets for primary and secondary care. The 1997 NHS (Primary Care) Act offers scope for experimentation with unified budgets, although piloting of these arrangements has been deferred until 1999. In theory unified budgets could provide more powerful incentives to shift the balance of care and to ensure that investment in primary care is matched by reductions in expenditure on specialist services. However the risks are considerable (Coulter and Mays 1997). The creative tension of contestability introduced by the purchaser provider split could be diluted if GP’s were able to increase the range of services they could provide and there would be greater potential for serious conflicts of interest for GP’s. The role of the DHA as monitor and regulator would need to be strengthened and it would become even more essential to develop robust systems for monitoring the quality and outcome of care. Vertical integration of budgets could encourage a shift in the opposite direction to that desired if secondary care providers were to become the budget holders, a possibility allowed for under the 1997 Act. They could use their
controlling influence to generate demand for their specialist services and to squeeze resources out of primary care.

Conclusion

Current developments in the British NHS offer an excellent opportunity to learn more about the merits of centralised versus devolved systems for commissioning health services. The evidence is thin as yet, but it seems likely that devolving budgetary control to GP’s increases responsiveness and sensitivity to local needs and encourages innovation at practice level, but at the expense of equity. In the absence of evidence about impact on the quality of care and health outcomes and in the face of insufficient data on costs, it is impossible to draw hard conclusions about the relative cost-effectiveness of the different models.

Acknowledgements

I am grateful to my colleagues at the King’s Fund, Nicholas Mays, Jennifer Dixon and Stephen Gillam, for helpful ideas.
Pros and Cons of Offering Patients Choice

**PRO**
- increased satisfaction
- increased awareness of treatment
- reduced distress and anxiety
- improved quality of life
- better health outcomes
- reduced litigation
- less inappropriate treatment

**CON**
- greater confusion
- loss of confidence in doctor
- increased distress and anxiety
- burden of responsibility
- increased morbidity
- increased time pressures
- more inappropriate demands
Information and Participation Preferences Among 256 American Cancer Patients

<table>
<thead>
<tr>
<th>Age (years)</th>
<th>20-39</th>
<th>40-59</th>
<th>60+</th>
</tr>
</thead>
<tbody>
<tr>
<td>%</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Participation preferences

- prefer participating in decisions
  - 87% 62% 51%
- prefer leaving decisions to doctor
  - 13% 38% 49%

Type of information desired

- want all information - good and bad
  - 96% 79% 80%
- want only minimal or good information
  - 4% 21% 20%

Preferences for detailed information

- prefer minimum
  - 15% 40% 31%
- prefer maximum
  - 83% 60% 69%

# Information Needs of 250 Cancer Patients in Scotland

<table>
<thead>
<tr>
<th>QUESTION</th>
<th>Do not want to know</th>
<th>Would like to know</th>
<th>Absolute need to know</th>
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<tbody>
<tr>
<td></td>
<td>%</td>
<td>%</td>
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<tr>
<td>Whether illness is cancer</td>
<td>4</td>
<td>24</td>
<td>72</td>
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<tr>
<td>Medical name of illness</td>
<td>25</td>
<td>46</td>
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<tr>
<td>Week by week progress</td>
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<td>48</td>
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<tr>
<td>Chances of cure</td>
<td>9</td>
<td>31</td>
<td>60</td>
</tr>
<tr>
<td>All possible treatments</td>
<td>14</td>
<td>32</td>
<td>54</td>
</tr>
<tr>
<td>All possible side effects</td>
<td>6</td>
<td>21</td>
<td>73</td>
</tr>
<tr>
<td>How treatment works</td>
<td>20</td>
<td>36</td>
<td>43</td>
</tr>
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</table>

C Meredith et al. BMJ 1996
## Proportion of Women Choosing Breast Conservation Treatment in Preference to Mastectomy

<table>
<thead>
<tr>
<th>First author/date</th>
<th>Country</th>
<th>Proportion choosing breast conservation</th>
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<tbody>
<tr>
<td>Fallowfield 1990</td>
<td>UK</td>
<td>69</td>
</tr>
<tr>
<td>Cotton 1991</td>
<td>UK</td>
<td>45</td>
</tr>
<tr>
<td>Wilson 1988</td>
<td>UK</td>
<td>35</td>
</tr>
<tr>
<td>Morris 1987</td>
<td>UK</td>
<td>65</td>
</tr>
<tr>
<td>Wolberg 1987</td>
<td>USA</td>
<td>49</td>
</tr>
<tr>
<td>Sauer 1992</td>
<td>Germany</td>
<td>75</td>
</tr>
<tr>
<td>Pozo 1992</td>
<td>USA</td>
<td>38</td>
</tr>
</tbody>
</table>

Preferences for Participation in Decision-making

<table>
<thead>
<tr>
<th></th>
<th>Active</th>
<th>Collaborative</th>
<th>Passive</th>
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</thead>
<tbody>
<tr>
<td>Canadian cancer patients</td>
<td>12</td>
<td>29</td>
<td>59</td>
</tr>
<tr>
<td>Canadian householders</td>
<td>64</td>
<td>27</td>
<td>9</td>
</tr>
<tr>
<td>Canadian breast cancer patients</td>
<td>22</td>
<td>40</td>
<td>38</td>
</tr>
<tr>
<td>British breast cancer patients</td>
<td>20</td>
<td>28</td>
<td>52</td>
</tr>
<tr>
<td>British benign breast disease patients</td>
<td>24</td>
<td>45</td>
<td>31</td>
</tr>
</tbody>
</table>

Evaluating New Developments in Primary Care

• Why is change necessary?

• How can the changes be evaluated?

• What problems have to be overcome?
The Secondary Care Paradox

- length of stay reduced
- day case surgery increased
- faster throughput
- longest waits reduced

BUT

- emergency admissions increased
- outpatient referrals increased
- more people on waiting list
- beds still blocked
The Primary Care Paradox

- greater power and control over resources
- increased staffing
- better vocational training
- better prevention and chronic disease management

BUT . . . . . .

- rising demand
- increased time pressures
- variations in quality
- low morale
Learning From New Developments
Involves:

- systematic monitoring
- critical evaluation
- weighing up benefits, harms and costs
References


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Murray D (1993) Patterns in NHS commissioning? A review and discussion of alternative models of integrated locally sensitive commissioning. London School of Hygiene and Tropical Medicine


Primary Health Care and Canadian Physicians c.1997

Michael Rachlis MD, MSc, FRCPC

The Second Trilateral Physician Workforce Conference
Vancouver November 15, 1997
Introduction

In 1972, Dr. John Hastings of the University of Toronto issued a report to the Conference of Deputy Ministers of Health on the Community Health Centre (CHC). Dr. Hastings' commission recommended that, as the provinces introduced Medicare, they also reorganize medical practice and the delivery of primary health care services. Québec did develop a network of 160 community health centres. (These are discussed later in this paper.) However, other provinces developed few, if any, new models of primary health care. Most primary medical care continued to be provided by family doctors in private practice who were reimbursed on a fee-for-service basis.

However, provincial commissions and inquiries on health in the 1980's and early 1990's again highlighted the importance of primary health care to make the rest of the health care system run more efficiently and to improve population health. The British Columbia Royal Commission on Health Care and Costs concluded:

"We believe there is enough evidence and track record that community health centres can reduce institutional costs and maintain the quality of care. This alone should be of interest to the government."

The Federal/Provincial/Territorial Advisory Committee on Health Human Resources report on Community Health Services concluded:

"The literature on community-based health services models reviewed for this component indicated that, in general, integrated, multi-service, multi-disciplinary models are less costly, and more cost-effective, than comparable services provided by single-service providers and institutional providers. This is particularly evident when comparing the community health centre organizational model with solo fee-for-service physician practice. The major cost saving appears to occur through the reduction in the use of hospital out-patient and inpatient services by populations receiving services from community health centres."

Later provincial ministry of health planning documents usually recommended the community health centre model for primary health care. For example, the BC ministry introduced their policy for health reform with the release of New Directions for a Healthy British Columbia in February of 1993. New Directions envisaged CHC's playing a major role in the restructuring of the health care system:

"In the decentralized system, community health centres will serve as a key mechanism to integrate and coordinate services at the community level."

But, as in 1972, it has proven harder to actually implement new models of primary health care than it has been to recommend their adoption. The 'health care reform' in the 1990's has, actually,

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* Public health insurance is widely known in Canada as "Medicare" which is also usually used to mean the entire health care system.

** En français, centre local services communautaire.
been more like hospital restructuring. However, in 1997 there are signs that primary health care reform is making some progress in some provinces.

This paper summarizes the situation in Canada's ten provinces* for physicians and new models of primary health care, analyzes why new models have and have not been implemented, and then makes some predictions about the next ten years.

**Methodology**

Structured interviews were conducted with ministry representatives in all provinces between July and October 1997.

**Results**

The current situation in Canada for physicians and new models of primary medical care

In this paper new models of primary medical care include:

1. Community health centres where family doctors are salaried or contract employees and they work in interdisciplinary practice with other professionals such as nurses and social workers. Most CHC's have global or program-based budgets although some in Ontario have capitation funding.

2. Family physicians' private practices where the prime mode of payment is capitation.

3. Private practice family physicians who hold contracts with ministries of health and are primarily not paid on a fee-for-service basis.

There are a number of doctors on salary through university departments of family practice. Unfortunately, there is no central collating of these data and this survey does not include these doctors. The survey results are shown in summary in table one.

The reorganization of health services in the 1990's

In the 1970's, as Québec implemented Medicare it developed 18 regional health authorities which gradually were given full executive authority over all services except physicians and pharmaceuticals. During the 1990's all the other provinces except Ontario have also devolved the day-to-day management of health services to regional health authorities. There are many differences in the details of this devolution. Typically, the new regional health authorities (variously referred to as regional health boards, regional health corporations, or district health boards) have been given budget authority for all health services except for physicians and pharmaceuticals. However, New Brunswick's regional health corporations only administer

* Canada does have two territories (Northwest and Yukon) but their large geography (4 million square kilometres), and sparse mainly aboriginal population (less than 100,000) means that these jurisdictions already have unique primary health care services.
hospitals and home care services. In Newfoundland there are six regions but only two have the responsibility for institutional and community services. The four larger regions have separate boards for institutional and community services. In Manitoba, the regions outside of Winnipeg have control over all health services (except for physicians and drugs) while Winnipeg will have (at least initially) separate boards for institutional and community services. In Nova Scotia, the devolution to regional authorities is occurring more slowly and so far the regional boards only have jurisdiction over hospitals and public health although the province does plan to eventually include other community services.

In most provinces the boards of individual hospitals and other facilities have been disestablished with their governance being assumed by the regional authorities. However, the Catholic facilities have been allowed to maintain their boards although they have greatly reduced autonomy. In Quebec, the hospitals, long-term care facilities, and CLSC’s (en français establishments) have been allowed to maintain their boards but receive their budgets and overall direction from the regional authorities.

All provinces started with appointed boards although most have announced their intention to proceed with elections. However, only Saskatchewan has conducted elections (in the fall of 1995). Eight out of the 12 board members of Saskatchewan's district health boards are elected and the other four are appointed by the Minister. Alberta had planned to hold elections in the fall of 1998 but these have been postponed for at least one year.

British Columbia, Alberta, and Nova Scotia had announced their intentions to create smaller boards (to be called community health boards or community health councils) within their regional boards to administer community based services. However, these plans have changed somewhat. In Nova Scotia their role is still being deliberated although thus far the community boards are strictly advisory. In Alberta, each regional health authority is to create at least one community health board but their roles are also unclear. In BC, the government in 1994 created 23 regions and approximately 70 community health councils. However, in 1996 government changed its course and now has 18 regions. The nine in the most heavily populated areas have the responsibilities for all services but physicians and pharmaceuticals while the other nine were split into 34 community health councils. The community health councils are responsible for primary health care services and small hospitals.

Ontario, Canada's largest province with over 11 million people, considered the regional model in the early 1990’s but rejected the concept. In 1996, the provincial government created the Health Services Restructuring Commission. The Commission is appointed by the Minister of Health but operates at arm's length. The Commission has the authority to reorganize hospital services including the power to close hospitals or merge them. However, the Commission can only make recommendations to the minister about investments in community services. Ontario initiated a series of discussions in 1995 about Integrated Health Systems (IHS’s). ICS’s were planned to integrate all health care services under member controlled boards. Although the planning was never completed the intention was to have competition between enrollment-based integrated systems like US Health Maintenance Organizations (HMO’s). It was very unclear as to how primary health care would fit into these models. However, a cabinet paper on ICS’s originally due in May/97 has now been indefinitely postponed. It appears that there will be little restructuring aside from hospital closures until after the next provincial election which is not due until 2000.

As mentioned earlier there have been recommendations for primary health care reform and
changing family doctors style for remuneration in the past 25 years. In 1995, the Federal/Provincial/Territorial Advisory Committee on Health Services issued a discussion paper on the reorganization of primary care and new methods of remuneration for family doctors and then conducted a national consultative process over the next year. Several medical organizations also issued discussion papers showing a readiness to consider change and several nursing organizations also released reports recommending primary health care reform. A national survey of physicians confirmed that more than half of all family physicians would consider moving to a salary even if the change entailed a slight loss of income.

Doctors in Community health centres and working on service contracts

All provinces have some community health centres (CHC’s) but no province other than Québec has a full network. There are approximately 160 CHC’s (en français, CLSC’s) in Québec. The first CLSC’s were initiated by community groups often with federal government grants in the late 1960s and early 1970’s. However, as Québec implemented its Medicare program after 1970, the CLSC’s gradually became the focal point for community based services. The CLSC’s receive approximately 8% of the health budget and this proportion continues to increase. In the mid-1980’s, the CLSC’s took on the home care mandate and gradually have become "one-stop shopping" facilities for health and social services. The CLSC’s are the exclusive providers of home care, public health and certain specialized services for individuals (for example, programs for children’s mental health). During the hospital downsizing of the 1990’s, Québec has relied upon the CLSC’s as the cornerstone of its virage ambulatoire (move to the community). Budgets and personnel have literally been moved from the hospital system to the CLSC’s. The centres have an average of 7-8 physicians and provide general medical services and support to particular programs (e.g. home care).

During 1997-98, Québec is merging the boards of about 50 CLSC’s in rural areas with the boards of small hospitals. There are concerns that this might threaten the mandate for health promotion and community development which is already under attack because of increased demands for home care services.

Ontario’s first CHC’s developed in a similar fashion to those in Québec where short-term federal grants allowed the start-up of “street clinics” and other special purpose facilities. In 1973 the Ontario government established the program development and implementation group which was to develop globally-budgeted CHC’s and capitated funded health service organizations (HSO’s). By 1975, there were 10 CHC’s which had started or had been given promises of start up funds and another 30 groups which were in various states of development. However, in April, 1975 the CHC program was frozen and the ministry attempted to force all CHC’s onto capitation funding which would have closed most of the centres.

In 1982, a Conservative government began to gradually expand the program and this expansion was accelerated under a Liberal government in 1988 when 6 new centres were to be funded per year. However, this was scaled back under a New Democratic Party administration to 3 per year

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* Some of the newer CLSC’s just have physicians to support their specialized programs rather than to provide general primary medical care.

** The New Democratic Party or NDP is Canada's social democratic party.
as part of general government cutbacks in 1992. Finally, a new Conservative government froze the development of new centres in 1996.*** The 60 Ontario CHC’s do not provide mandated services such as home care or public health. Rather they have been seen as facilitating access for groups which otherwise would have difficulty accessing the health care system (e.g. the poor, elderly, multicultural groups, aboriginals, etc.)

In Saskatchewan, there are 5 community clinics which were originally developed in 1962 when the social democratic government of Tommy Douglas introduced Medicare and 95% of the province’s doctors went out on strike. The clinics were established by party activists and governed as cooperatives. The later NDP governments of Alan Blakeney and Roy Romanow have not used the model as a prototype on which to restructure medical practice and primary health care services. The district health boards were supposed to have taken over the governance of these clinics in 1995 but this decision has been postponed several times.

In the summer of 1997, the Saskatchewan Department of Health appointed the province's chief medical officer, Dr. David Butler-Jones, to assist district health boards in developing a primary health care strategy. Dr. Butler Jones and his group are working with the districts to integrate the previously separate community services as well as facilitating the involvement of family doctors with these new structures. Saskatchewan is focusing on signing doctors to service contracts where the doctors agree to give up their fee-for-service billings in return for a fixed payment and contract which clearly delineates their responsibilities including on call arrangements.

A senior Manitoba official, Dr. Ted Tulchinsky, was a member of the Hastings commission into CHC’s and during the early 1970’s, the Manitoba government started to implement the Hastings proposals. Six CHC’s were developed in Winnipeg and seven were opened in rural areas. The seven rural CHC’s provide home care and public health nursing services and often incorporate a long-term care facility but the six urban ones don’t have mandatory services. However, with the regionalization begun in Manitoba in 1996, the rural CHC’s are being integrated under the regional health authorities and in Winnipeg 22 neighbourhood resource networks have been announced. These networks will formally link the various community services within their boundaries. The existing CHC’s in Winnipeg will be so-called network "anchors" in the neighbourhoods in which they are located. Other anchor clinics will include some private practices.

British Columbia’s short-lived social democratic government of 1972-1975"‘ established a number of community health centres but many of these were cut after the government’s defeat. The remaining seven stayed marginalized from the rest of the system. There was great anticipation after the 1991 election of the New Democratic Party. The Royal Commission on Health Care and Costs had just issued its report and it had recommended CHC’s as the main approach for

*** There are about a dozen CHC’s being developed in southern and mid-northern urban communities to provide services to first nations members in Ontario.

* Winnipeg, Manitoba's capital city has a population of approximately 650,000, 60% of the total population of the province.

** The New Democratic Party government of David Barrett was sandwiched in between nearly 40 years of rule by the conservative Social Credit Party.
integrating community services with salaried doctors. However, the province has had considerable difficulty in enunciating a strategy for primary health care. The Vancouver-Richmond health board is creating six community health centres in the inner city of Vancouver (population approximately 400,000) to better coordinate the integration of mental health, public health, home care, and addictions services. They plan to use some of the funding for public health physicians (19 full time equivalent positions) to fund the salaried doctors in these clinics.

Newfoundland's position is unique because historically it has had a large number of salaried family doctors in its remote towns and villages. The doctors were salaried in part because there was not deemed to be the population to support a fee-for-service doctor. These doctors correspond to those in other provinces paid on service contracts. Recently the ministry of health has begun to develop CHC's and there will be approximately 4 in operation by the end of 1998.

Other provinces have had few CHC's in the past and are finding it somewhat difficult to move towards this new model. Alberta is the only province where public health nurses have responsibility for all childhood immunizations and they are located in offices with approximately one per 20,000 - 40,000 people. There have been some recommendations that Alberta use these offices as a base for a new system of primary health care built upon public health. However, this has not happened and there are pressures from some doctors to discontinue the public health clinics and second the public health nurses to doctors' offices.

The number of Alberta doctors with service contracts is imprecise because the provincial department of health does not have complete data on the arrangements which involve regional authorities. There are over 230 family doctors with some sort of service contracts but almost 90% of them continue to bill on a fee-for-service basis for at least some of their work. Alberta is exploring expanding the option of service contracts as are Nova Scotia, New Brunswick and Prince Edward Island.

Capitation arrangements

The Ontario Health Service Organization Program

Ontario has had almost thirty years of experience with a capitation model for primary care -- the Health Service Organization or HSO program. In 1963, the Sault Ste Marie Group Health Association Clinic opened in this Northern Ontario city of 80,000. The Clinic had been organized by local citizens and had a community board. Major funding and expertise had been provided by the United Steelworkers of America and, to a great extent, it was patterned on the US prepaid group practices like Group Health Cooperative of Puget Sound and the Kaiser Permanente Clinics. After the implementation of Medicare in the early 1970's, negotiations between the clinic and the Ontario government led to the HSO program which was subsequently opened up to private doctors.

At present, there are approximately 80 centres involving 300 family doctors. There are two centres (including the Sault clinic) which are governed by communities and four which are governed by university family practice departments but, most HSO’s are small private practices.

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* The main employer in 'the Soo' has historically been the Algoma Steel Company and the Steelworkers union has always played a prominent role in the community.
with less than 5 doctors. The Sault clinic does have about 35,000 patients and the largest private HSO, the Grandview Medical Centre in Guelph, has 25,000 patients. The program grew slowly until the mid-1980's and then the provincial government began to encourage doctors to switch from fee-for-service to capitation highlighting that their incomes would improve in the process.

Unfortunately, the Ontario HSO program had significant administrative problems. There were no rules for creating or administering a patient roster. To complicate matters further, the HSO’s only lost the payment for that months capitation if a rostered patient received care outside the practice. (This process is referred to as negation.) However, the HSO would receive the payment the following month if the patient was not seen elsewhere.

Some doctors registered patients who weren’t really theirs but continued to be paid for them most months. Some rostered patients were long dead but the province still paid for their care. Another problem was that HSO doctors were allowed to bill fee-for-service for so-called 'transient' patients. But this supplied an incentive for doctors to roster healthy people who they never saw and bill fee-for-service for sick patients whom they labelled as transients. The HSO’s were paid based upon provincial average payments for various age and gender groups (e.g. females 0-4 years of age, males 55-59, etc.) but the HSO patients appeared to be healthier than average. The HSO’s were supposed to hire other professionals like nurses and provide better preventive services but most didn’t. By and large, the HSO doctors just kept the extra revenue as personal income with some family doctors receiving payments of more than half a million dollars a year. And, finally the HSO’s were given bonuses if they reduced hospital use by their patients (the ambulatory care incentive plan or ACIP) but a study showed that there was no difference in their patients hospital utilization after they converted from fee-for-service.

In the early 1990’s as the Ontario Ministry of Health developed concerns about this program and basically froze the program to new applicants. The government gradually negotiated new arrangements with the Ontario Medical Association which was given bargaining rights for the HSO doctors as part of the 1991 agreement with the provincial government. ACIP payments were discontinued although some of the money was invested in specific program budgets. The negation for outside use by rostered patients was increased to 50% of the actual cost of outside services and mechanisms were put in place to better verify rosters.

Other capitation plans

By the mid 1990’s many Ontario physicians wanted to change the way they were paid. The Ontario Medical Association (OMA) proposed a rostered system dubbed "reformed fee-for-service" in 1996. The plan would involve rostering of patients but the doctors would be paid on a fee-for-service basis up to a maximum calculated on the basis of the estimated capitation payments for their rostered population. In July of 1996, the Ministry of Health announced a primary care task force which was to fund pilot programs based on the OMA proposal as well as a so-called "interdisciplinary model" which would have doctors and other professionals working together. Interestingly, the government showed no interest in the existing capitation organizations (the HSO’s) or interdisciplinary practices (the CHC’s). However, the announcements of pilot projects has been delayed three times (the original announcement was to be made in January

* Most HSO’s were located in middle to upper income areas and there were few rostered patients in long term care institutions.
1997) and it is widely anticipated that there will be little if any progress in the development of capitated models until after the next provincial election (not expected until 1999 or 2000).

However, other provinces have begun to develop capitated models. Saskatchewan has brought on stream three capitated centres since 1994, one in Regina and the other two in rural areas. There are three types of funding — one covering all family practitioner services, one covering only office visits, and one covering all services except surgery, obstetrics, and anesthesia. The capitation fee includes protected money for certain ancillary staff such as nurses. Patients are automatically enrolled if they receive more than 75% of their family practice services from a clinic doctor. The clinics are charged the full value of all outside services but once they have lost 150% of the annual capitation payment, the clinic may disenroll the patient. After an estimated value of $1000 of medical services has been provided (the clinics submit 'dummy' bills to the provincial medicare plan), the doctors can bill fee-for-service to these clients. The capitation model has not proven as popular as was previously anticipated. However, Ministry staff feel that through publicity about this model, doctors have become more interested in the service contract option.

Manitoba is in the process of initiating its first capitated pilot project. A 14 family doctor clinic in a Winnipeg suburb will convert to capitation funding on January 1, 1998. During the 1997 transition year, the clinic has been on a global budget based on 1996 billings. The program operates in a very similar fashion to that in Saskatchewan. The clinic's patients are automatically rostered if they have received more than 75% of their family practitioner services from the clinic. The clinics are charged the full costs of any outside use up to 150% of the annual capitation payment. The initial budget included a protected allotment for 4.5 FTE nurse practitioners. There has been a lot of interest displayed in this model but it will likely only be applied to the suburban areas of Winnipeg and possibly some rural areas. Ministry staff note that the core area of the city has a very transient population and much greater needs for interdisciplinary care.

Evidently, the Winnipeg doctors are fairly satisfied with the transition year. They have been able to cut their outside use by more than 90% through the extension of office hours and the use of the nurse practitioners. In fact, as the roster is about 20% lower than planned, the doctors are considering hiring more nurses if they have to replace a doctor.

The Alberta Medical Association released a discussion paper on capitation in 1995 and has subsequently been negotiating with the Provincial Ministry of Health and the Regional Health Authorities for pilot programs.\(^4\) As of November, 1997, the details have not been officially announced, but the first pilot will likely be in a rural community where the two doctors will receive capitation payments for all the residents within a particular geographic area. Other pilots may include an innovative ambulatory long term care program.

In most other provinces there is also interest in capitation from either ministries of health or physicians or both. In Quebec, capitation is mainly being considered for innovative ambulatory care programs for the frail elderly.\(^5\) The main exception to this rule is British Columbia where the provincial medical association has been particularly resistant to non-fee-for-service payment.\(^6\)

**Discussion**

**Barriers to primary health care reform**
The above review of developments in primary health care and physicians services displays a mixed picture. Québec has always been ahead of the rest of the country in developing salaried practice. Saskatchewan which led the country in the implementation of public health insurance in the 1940’s, 1950’s, and 1960’s has reasserted its leadership in English Canada in the 1990’s. Steven Lewis, the executive director of the province’s Health Service Utilization and Research Commission has predicted that fee-for-service payment for Saskatchewan family doctors will disappear within 5-7 years. However, Ontario which pioneered capitation payment and also developed the second largest network of CHC’s has, if anything, moved backwards in the 1990’s.

The collective agreements between provincial medical associations and ministries of health which were signed in the 1990’s have presented a significant barrier to alternative payment and practice arrangements. Starting in 1991 in Ontario, most provincial medical associations and provincial ministries of health negotiated the creation of ‘joint management committees’ which were to provide ‘co-management’ of the health care system. Typically, these agreements establish a fixed budget for fee-for-service payments and if doctors wish to move to other methods of payment, the province is only allowed to remove that doctor’s Medicare billings from the fee-for-service pool of funds. Because the doctors who wish to change payment methods tend to have lower than average fee-for-service billings, the provinces have to come up with new money to change doctors’ payment methods.

In some provinces, the ministry of health must negotiate the conversion of physician practices on a case-by-case basis. In all provinces which have such agreements, co-management is felt to be at least somewhat of a barrier. However, there is still progress in some of these jurisdictions (e.g. Manitoba, Alberta) if there is political will and no active opposition by the provincial medical association. However, Saskatchewan’s lack of such a co-management agreement is widely considered to have facilitated its lead in English Canada. The 1997 physicians’ agreement in Ontario has added even more barriers in that province. The new agreement stipulates that no money may be moved out of the fee-for-service pool to pay doctors in another manner. Ontario must come up with totally new money to change the way any doctors are paid. It is widely felt that this section of the new agreement will prevent the Ontario government from making any significant changes in physician payment until after it expires in 2000.

There are other barriers as well. In provinces without comprehensive labour adjustment strategies, labour is threatened by a shift to community care and the reorganization of community services. Typically, institutional jobs are unionized while most of those in the community are not. As a result many community jobs pay poorly compared to institutional ones and they are more likely to be part-time. Less than five of the approximately 60 Ontario CHC’s have unionized staff and, therefore unions have not supported their expansion. In some provinces there are problems with different unions representing different workers in different settings. In British Columbia, two of the most powerful public sector unions are on opposite sides of this divide with the Hospital Employees Union representing most of the institutional support workers and the BC Government Employees Union representing most of the support workers in community care. This conflict has added to the policy paralysis in BC, where the government is heavily influenced by organized labour. On the other hand, a clear labour agreement in Saskatchewan has facilitated that province’s move to new primary health care models.

* In Quebec, BC, Saskatchewan, and Manitoba most workers in community health services are unionized.
Other non-physician health providers are also somewhat resistant to the CHC model. In most provinces the assorted community services (variously organized in the different provinces into public health, community mental health, home care, and addictions and alcohol services) had been under different administrations prior to regionalization. The workers in the field are somewhat reluctant to change their previous methods of working and many do not want to be integrated with others. Administrators in regional authorities report that it has been somewhat difficult to convince these workers even to move to one location much less to create new kinds of primary health care teams.

There is little political demand for primary health care reform. The public is much more concerned about waiting lists for acute care. While a convincing case could be made that more Canadians are suffering or dying because of lack of effective primary health care than a lack of high technology services, the public pressure is for more high technology services (in the vernacular 'hips and hearts'). This limits the ability of government to put more resources and policy attention into this area. However, there has been some advance in the understanding of the public and decision-makers of these issues in the past ten years.

Confusion moving to clarity on the relevant information for primary health care

In general, the information about primary health care has been fairly confused for the public and policy-makers. There are many ways of reviewing the literature on primary health care. There is a small body of controlled studies which has evaluated the performance of different whole models of primary health care in Canada. However, even when this literature is added to the larger body of research from other countries, researchers and interest groups differ on what policy conclusions should be drawn. Some researchers and policy makers feel the literature conclusively proves that the community health centre model is superior to traditional practice models.23

"We found that community participation health care centres (CHC) offer significant economic and non-economic advantages. Their overall costs per patient are lower. They have consistently brought about significantly lower hospital utilization rates. their emphasis on multi-disciplinary teams makes them better and more cost-effective users of health care professionals..." (Angus and Manga 1990)

On the other hand, some interest groups believe that there is a paucity of useful evidence to indicate a move away from the status quo:

"Although it is claimed that community health centres constitute a cost-effective method of providing health care, little information is available on this or on patient health outcomes compared with private office practice." (Canadian Medical Association, 1994)24

In fact, the literature comparing whole models of primary health care is very limited in its ability to assist policy-makers. First, there will always be conflict about the generalizability of the results. For example, the studies from the early 1970's of the Sault Ste Marie Group Health Association Clinic (the largest capitated clinic in Canada) are often dismissed because they are claimed to be dated.25,26,27 Studies of the Saskatchewan CHC's are sometimes dismissed in Ontario because it is claimed that the two provinces are too different.28 It is conceivable that an excellent study could be conducted of a CHC in east Toronto and it could be dismissed in Ottawa, (or even in west
A second problem with the literature on whole models is that there are conflicts about which components of the models make a difference. Physicians' groups are quick to claim that better primary care performance could still be achieved by continuing doctors exclusive right of 'ownership' and gatekeeping and simply tinkering with other components.*

By the mid 1980's, provincial governments had come to believe that fee-for-service payment increased overall costs although this was not necessarily accepted by others in the health policy community. However, by 1997 many physicians' organizations have published their own critiques of fee-for-service and there is a heightened awareness by other groups. For example, the Alberta provincial auditor criticized fee-for-service payment in his 1997 annual report noting that,

"Some believe that a volume-driven payment system poses the risk of encouraging the provision of unnecessary services."

Another recent newspaper story reported that fee-for-service payment increased antibiotic prescribing and linked this issue with the rise of drug-resistant bacteria in Canada.30

Policy makers increasingly accept the following argument for primary care reform.

1. Current Canada arrangements for primary health care promote ineffective health care delivery and Canada's performance in this area could be improved.31,32,33,34,35,36,37,38

2. Changing the way doctors are paid but not changing other aspects of primary care is unlikely to make much difference in overall system performance.14,15

3. Changing the ways doctors are paid and introducing elements of the community health centre model could make a difference in patient outcomes and the utilization of institutions.39,40,41,42,43,44,45,46,47,48,49

In particular, policy makers in other provinces have become fairly familiar with the evidence and other lessons from Ontario's HSO program. Even though the HSO funding eliminated many barriers to better organized primary care and provided a major incentive to reduce hospitalization through a bonus system, overall the physician-run capitation practices did not perform any better than their fee-for-service counterparts. Also, the HSO's did not use non-physician providers much better than fee-for-service practices.14,50 This is consistent with other evidence that physicians are less likely to work collaboratively with nurses and other professionals if this decision is left totally in their hands.51 As a result, nursing organizations and policy-makers are attending to the details of primary care contracts to ensure that these efficiencies are built into new funding models. For example, as mentioned above, the Manitoba government has insisted upon a protected budget for primary care nurses in their capitation pilot in Winnipeg.

This overall line of argument in favour of the CHC model is also consistent with major US

* The subtitle of the Ontario Medical Association proposal on primary care is particularly revealing of this approach -- "A Strategy for Stability". (emphasis not in original)
literature, in particular the Rand Health Insurance Experiment which concluded that the costs for
the HMO patients were 25% less than those seeing fee-for-service doctors -- due almost entirely
to the fact that HMO patients spent 40 percent fewer days in hospital.32,33

Looking to the future

While the 1990’s has not seen a wholesale move to change Canadian family physicians’ payment
or toward new models of primary health care, there are signs of policy movement.

After 25 years of regionalization in Québec and 2-5 years of regionalization in eight other
provinces, it appears that a new institution, the regional authority, has changed the balance of
interests within the system. In 1975, Alford referred to the corporate rationalizers as those
administrators and planners within the system whom he saw increasingly challenging the medical
profession’s professional dominance.54 In the United States third party payers and the
administrators of integrated systems have taken control over the organization of health care
services from physicians and other professional interests.55 However, in Canada private third party
payers are still mainly potential interests and, up until regionalization, Canada had few integrated
systems. Particularly within medium and small-sized communities, physicians presented a
formidable interest group to a series of administrators in institutional and community agencies.
However, regionalization introduced a unified a management structure with increased
administrative powers, more political influence, and a broad mandate to improve the health of
their citizens.

Originally physicians were able to stay out of regional budgets and maintain a direct political
connection with the province. But, over time, physicians are becoming more connected to their
regions. Increasingly, physicians are being credentialed at the regional versus facility level and
provincial medical associations are using regional boundaries for political purposes. In
Saskatchewan the physicians who have service contracts sign them with the district health boards
and the district has a complementary contract with the province. In time, it is likely that physicians
will have even more direct connections with their regions which is likely to lead to more direct
accountability to the administrators and governors of the system than has occurred in Canada up
until now.

Physicians are increasingly interested in being remunerated in a different fashion. Fewer doctors
want to run their own business as opposed to the security of a regular paycheck and the comfort
of having someone else administer the practice. There is a growing public consensus that fee-for-
service produces undesirable outcomes. There is also a growing consensus among policy-makers
and health system stakeholders that simply changing the way doctors are paid will not achieve
other policy goals.

While it is still too early to predict with certainty, within 10 years it is overwhelmingly likely that
most family physicians in most provinces will receive the majority of their income from non fee-
for-service payments. It is also likely that primary health care will be more influenced by non-
physician providers and administrators than it has been in the past. This may have profound
implications for overall health care policy. Primary health care plays a pivotal role in human
services system. A primary health care system which is dominated by physicians and concentrates
on referrals to medical specialists tilts human services in the direction of individual treatment with
a biomedical focus. On the other hand, a primary health care system with a concentration on
health promotion where physicians are members of collaborative teams could re-direct human
services in a more social direction.
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<tr>
<th>Province</th>
<th>Population, General/Family Doctors</th>
<th>Salary</th>
<th>Service Contracts</th>
<th>Capitation</th>
<th>CHC’s/CLSC’s</th>
<th>Notes</th>
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<tbody>
<tr>
<td>NEWFOUNDLAND (pop 550,000, general/family doctors 606)</td>
<td>salary &gt; 75</td>
<td>3-4 CHC’s</td>
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<td>NOVA SCOTIA (pop 900,000, general/family doctors 931)</td>
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<td>service contracts ~ 20</td>
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<td>PRINCE EDWARD ISLAND (pop 130,000, general/family doctors 100)</td>
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<td>2 CHC’s</td>
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<td>NEW BRUNSWICK (pop 750,000, general/family doctors 660)</td>
<td>salary 4</td>
<td>2 CHC’s</td>
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<td>QUEBEC (pop 7,000,000, general/family doctors 7528)</td>
<td>salary ~ 1200</td>
<td>160 CLSC’s</td>
<td>capitated ambulatory long term care project?</td>
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<td>ONTARIO (pop 11,000,000, general/family doctors 10,230)</td>
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<td>77 capitated clinics</td>
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<td>service contracts 35</td>
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<td>14 CHC’s</td>
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<td>5 CHC’s</td>
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<td>ALBERTA (pop 2,700,000, general/family doctors 2453)</td>
<td>salary &lt; 5</td>
<td>service contracts ~ 20-235</td>
<td>3 CHC’s</td>
<td>6 capitated centres in 1998?</td>
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<tr>
<td>BC (pop 3,700,000, general/family doctors 4080)</td>
<td>salary &lt; 30</td>
<td>7 CHC’s</td>
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* The numbers are for active civilian general/family doctors. These doctors are non-military doctors who are licensed in the province and have a valid address.
Endnotes:


35. Deutsch N. FPs can do more to prevent neural tube disorders: Not enough women are being told to take folic acid, study reveals. Family Practice. March 18, 1996.


47. Cupples ME, McKnight A. Randomised controlled trial of health promotion in general


TONY MATHIE
Discussant Presentation

I'm delighted, if somewhat surprised, to be here. I have washed the straw out of my hair before coming, but as you've heard, my background is very firmly rooted in actual day to day, ordinary, common or garden general practice. I did chair a health authority for a while, but that was before the reforms and seems an awful long time ago. Before I gave up practice I was visiting my patients one day in a rural area, and I went to a farm, and outside the front door of the farm, much to my surprise, was a pig with a modern, high technology, fully articulating, artificial leg. After I’d seen the farmer I said, "Bert, I couldn’t help noticing the pig outside the front door." And he said, "That's the most wonderful animal. A few months ago we had a fire in the farm at night, and we were all asleep in bed. The pig smelled the smoke. It got out of the sty, nuzzled up the latch of the back door, came upstairs, woke us up, led us to safety through the smoke." I said, "I suppose it was injured in the fire." He said, "No, no, nothing happened to him in the fire at all." I said, "What's the story about the artificial leg?" And he said, "You see if you've got a pig that smart, you don't eat it all at once."

Now, I tell that story for two reasons. The first reason of course is to get a cheap laugh. The second reason is that it often seems to me that when things aren't going well, that pig is an allegory for primary care. People keep telling me how important it is, but they're chopping it apart bit by bit by bit.

I've enjoyed the papers that we've heard this afternoon tremendously. I have to say, Michael, that from the other side of the pond, the Canadian system looks rather more integrated than you've painted it. But certainly community health centres do have a feel that they might be something like we're used to in the United Kingdom. I suppose the bad news for you is that you've asked if there's a light at the end of the tunnel. I have to tell you that it's a train coming.

Angela, when I read your original paper, I found it very balanced, because I kept writing at the side, oh my God, and yes, and oh my God and yes. At the end there were an equal number of both, so I assume that means that it's a balanced paper. But there were a
number of things, having been a fundholder myself, that I think it perhaps would be helpful if I just added to the equation. You quite rightly said that health authorities performed an amazing task. When fundholding first started health authorities said, don’t worry, don’t invest money in this, it will wither on the vine, nothing’s going to happen, it’s just a passing phase. You join the system year on year, so that on the first of April each year you have an opportunity to join. The doctors who joined in the first wave were not pilots for the scheme, but they were certainly the Kamikaze pilots of British general practice. They invented methodologies and ways of working which no one had ever thought about. They put together limited companies which allowed them to buy care from themselves at a profit. They may not be allowed by fundholders to keep money directly from the scheme, but you’d be very surprised, I’m sure, to hear that a number of fundholders have bought bigger and better premises with their funds. They’ve certainly had money to help them buy computerised systems for their practices and the penetration of on-desk computers in British primary care is extremely high. And, although they may not get money in-year, as it were, many fundholders will profit when they retire. As to the future of fundholding, we hear that the Secretary of State has already said that if you are a manager in a fundholding practice, start looking for another job. But the Prime Minister has told him that’s not quite the party line, so it’s really quite difficult to know, and the white paper keeps on getting put back. So we’re not quite sure what’s going to happen there.

The big problem, I think, for fundholders was that, since 1948 when the National Health Service started, general practitioners have had no voice. The hospitals simply did not listen to a word we said. Fundholding did seem to be an opportunity to get things changed, to get things done, and many people joined from that point of view. Then when it gathered momentum, in many parts of the country there was huge pressure to become fundholders. Many practices were grouped together in really unholy alliances, and called fundholding practices, managers were put in from health authorities to help them run, and in no sense were they a collaboration or in any way a grouping that would normally have got together, but were rather forced into this situation. So, although penetration as you’ve seen has reached just over 50% of the population, certainly in the later wave, this has been a rather contrived experience for many practices, and for us to see some of the practices,
who have gone in the sixth or seventh wave, some of them (fair enough) have been struggling with internal practice dynamics, and having got those sorted out they’ve come in. But many of them, having said no, no, no for five and six years, have then come in to fundholding in rather a strange way. There are quite marked differences in the makeup of the waves. As I say, the people in the first wave really were a different sort of animal from people in later waves.

I think the thing that finally persuaded the current government to get rid of fundholding is what has been called two-tierism in the National Health Service. Angela has referred to this idea that fundholding patients get into hospital easier, see specialists easier, and so on. I think this is a fallacy. I mean, I’m not saying that it didn’t happen, but I don’t think it’s got very much to do with fundholding. There’s always been at least two tiers in the National Health Service, leaving aside the private tier as a back way into the National Health Service. There’s always been those GP’s who would, in a phrase that might be familiar to some of you from over here, go the extra mile for their patients, and those who simply would say, well I’m sorry, waiting lists are very long, you’ll just have to wait the two years or whatever is okay. There’s always been two tierism, and in general the people who were prepared to go out for their patients more have been the doctors who have joined the fundholding system.

Kevin’s paper I thought was wonderful, and I was delighted to read it. There were a number of things in it which rather struck me as, not bizarre, that’s not fair, but the seven-to-one ratio of specialists to family doctors is something that I had to read several times. In the UK, as you probably know, the ratio is 2:3 at the moment. It’s approaching parity because specialists are growing at the rate of around 5% a year, whereas family doctors are growing at the rate of less than 1% a year. But 7:1 is a ratio I can’t even comprehend in my mind. The discontinuity caused by the movement of plans is extreme, where I think in your paper you said 25% of people over a two year period have forced discontinuity in their medical care due to decisions made by the people running the plans. This was something which I find very difficult, particularly coming from a leafy lanes, as we call it, from a rural area in England where I’ve looked after people from generation to generation, so that until you’ve been in the practice as a partner for about 15 years you’re
still known as the young doctor. If you don’t come from their part of the country you’re the young, foreign doctor, and it takes a very long time. It’s said in English general practice that until you deliver a baby from a mother who you delivered, you haven’t really arrived. Now, of course the situation’s changed quite a lot, and it’s going to change even more in the future.

But I have to tell you, I’d been a GP for 15-16 years at least before I realised I was being the gatekeeper. For the first 15 years or so of my time as a GP, this is what I thought I was doing. I was providing personal, primary and continuing care to a registered panel of, in our case, about 13,000 people. Tending them in their homes, in my practice we would do, as recently as 1990, over 10,000 home visits a year between us. We accepted responsibility for making initial decisions on every problem that presented, consulting with specialists when we thought it appropriate to do so; neither more nor less. As you’ve heard, in our case in a rural area, probably around 5% of our contacts would be referred for specialist advice. So, I think that gatekeeping was something a bit like speaking prose, in that I didn’t realise I was doing it for many years. But having looked at the gatekeeping role, and accepting that there are good things about it, there are things about patient support and advocacy, things about continuity of care and responsibility for patients, there are the good things like the GP being the care manager for the patient, the registered list concept, the unified medical record, the referral and feedback system which we have, which allows us all sorts of advantages that many other systems don’t have.

However, there are many considerations now, which I think are coming in, which will limit our ability to work in this way in the United Kingdom, and I suspect elsewhere. The first is the availability of doctors. We have managed on about half the undergraduate output in the United Kingdom. Until we got short of doctors, we’d always assumed that most of those people were volunteers who wished to be general practitioners. Now that we’re short of doctors, the latest cohort study from Parkhouse and his colleagues suggests that we’re down now to about 18% of final year students for whom primary care is their first choice of career. This is half the number that was coming out 10 years ago. We are recognising more and more that many people are becoming primary care doctors because other avenues have shut to them, and that in many cases, negative attitudes about primary
care from hospital specialists with whom they have worked and trained have forced them into primary care. Fifty-five per cent of our trainees in general practice are women now. This is not something I’ve heard yet today, and I apologise if this is not politically correct, and I will try and avoid doing what I normally do, and referring to them as the contrary gender. But in England where 55% of our trainees in general practice are women, we know that 30% of the principals, 30% of the fully trained general practitioners actually working are women, and that number is rising year on year. We also know that, at any one time, only about half, less than half of these women work full time. But if you look at them across a career, they deliver about 3/4s of full-time. That’s not meant to be pejorative in any way, because we know that men in England are working much less than what we traditionally regarded as full time as well. The effect of this is that there will be 100 people retiring from the top of the profession, who will mostly be men, who will mostly have worked full time throughout their careers, who often will have been in one practice for 35 years or more. Although it’s a very crude calculation, and it’s based on other things like the fact we’re also training doctors to go back to the European community under these rather curious regulations that we find ourselves saddled with, in order to replace them with the equivalent amount of career productivity, we need to train 150 doctors, and apparently we’re training about 80. So we only have a capacity to replace half our retiring fte general practitioners in England. This is going to cause us problems. You need to add to that the fact that in the older age groups of general practitioners, particularly in inner cities, we have a very large number of doctors who trained outside the United Kingdom, often in the Asian subcontinent. Due to changes in immigration regulations in England, they will not be replaced. We’re facing a very severe shortage of career general practitioners.

In addition, of course, the people who are coming in have absolutely no intention of working for the same length of time or with the same intensity that we worked and our forebears worked. I recently had the unpleasant experience of advertising for a new partner in the practice and we had 50 applicants. When we got down to the short list, we took the two or three doctors aside and gave them all the details about projected income, about the financial situation with the building and equipment, about the legal tying into the
practice, the way we do it in England, and this doctor looked at me and he said, "I'm flattered to be shortlisted, but there's a bit of a problem." I said, "Well, I'm sure we'll be able to work it out, what's the problem?" He said, he liked to get off to the cottage on a Friday. I said, yeah, well that'll be fine, one Friday in five or something, I'm sure we can.. He said, "No, we like to go to the cottage every Friday, and we like to be away before lunch because the traffic builds up." This guy turned down the opportunity of being in a partnership in a rural area of England, good quality of life, earning at that time £55,000 Sterling a year, job for life, turned it down because he wanted to be away to the cottage on a Friday afternoon. When I'd revived my senior partner and explained to him that he wasn't having a holy emanation, we had to face the fact that it would no longer be likely that we would find people who would come out of vocational training, enter our practice and work full time for 35 years as most of us had done. When I left my practice on the first of January 1996 to become a full time director, I was the first doctor to leave my practice since 1973. Now that's not a particularly common situation in the United Kingdom, but certainly in rural areas it's not unheard of.

So, we have major problems. Now, skill mix is coming into the equation. We're going to talk about that, I know, tomorrow. But in British general practice, we've moved from a situation of having 1,500 practice nurses in 1982 (these are nurses employed by general practitioners, working in their offices, working in their surgeries), to 18,000 in 1995. This is a huge increase. So skill mix has been taken on board. It is regarded by general practitioners as a very threatening thing. And GPs' views about what is needed to deliver primary care is, I think it would be charitable to say, extremely naïve. When nurses and doctors were asked about what would be needed to deliver perfectly trained nurses to take over some of the role in primary care of doctors, while the nurses were very clear about their educational needs, the doctors just thought they would need a bigger room to work in.

The other big issue that we're facing and that's been alluded to is variable quality. I'm rather surprised that it took so long in the day for people to bring it to mind the fact that outliers are at both ends of the scale. Certainly, we have major problems in quality in the United Kingdom, such as unexplained variations in performance, referral rates to
secondary care varying ten times between practices in the same location dealing with broadly similar patients. We have just brought the United Kingdom regulations to deal with what I call “doctors behaving badly”, but is actually called “poorly performing doctors.” This is below the level of malpractice, but at the level of persistent poor performance, where our General Medical Council, which is currently headed up by a general practitioner, is proposing that these doctors should be offered remedial help, and if that help doesn’t deliver the goods they should cease to be able to practise. Many of these doctors, unfortunately, are single-handed, overseas-trained doctors in inner city practice. The current prediction is that primary care doctors will be hit by these regulations in a ratio of 4:1, compared to their specialist colleagues. I hold no brief for these doctors. I see a lot of them as part of my role in postgraduate education, and I’m very sad to see them. But to be honest, many of these have never had any guidance of any sort throughout their careers, and have been able to do almost what they like. The health authorities who are supposed to be managing them have turned their backs on them, simply because they know it’s difficult to recruit replacements. So they’ve been allowed to get away with everything. To reflect on what my colleagues have already said, there is almost no pressure from patients to remove these doctors from their posts, or to change the system under which they work. Indeed, one of the problems we’re going to have with poorly performing doctors is persuading enough patients to make a fuss, or to make complaints, to allow us to go to the General Medical Council with carefully thought out cases to support taking the remedial route with these doctors. So that is a big problem that we have.

There are perverse incentives in our system, of course, as there are in all systems. The major one in our system is that the current funding situation means that the less you do the more money you get, and we’ve heard this from elsewhere. The situation is that there is partial reimbursement for staff and for premises. It makes no sense for some doctors to spend a lot of money on staff and premises if you can get away with less. Again in the inner cities, there are doctors who are single-handedly looking after up to 5,000 patients on a registered list, in very high dependency areas, and are continued to be
allowed to do this, on the grounds that they are looking for partners. And when you actually look at what they’re offering partners, it’s not a surprise that they can’t find them.

I was interested in Kevin’s description of centripetal as against centrifugal systems. Certainly in England, one of the things the GP fundholding system has done is to be very overtly centripetal; we’ve brought specialists into the community and into outreach clinics. In addition to a vast increase in the numbers of administrative staff, we have all these outreach clinics with specialists coming to our surgery to see only our patients. But we’re still the gatekeeper in that these are all referred patients with referral letters and referral responses from the specialist. We have a very multi-disciplinary-looking team. I say "looking team". I will be scarred for life by the experience of sitting in a room like this full of doctors and primary care nurses, and asking the question, how many of you think you are working in a functional, multi-disciplinary team? All the doctors in the room put their hands up, and all the nurses looked out of the windows. To this end, I have, ten days ago, appointed to my own director team in Liverpool (the first such appointment in the country), a nurse to be an associate director to demonstrate that we are actually not only talking multi-disciplinary teamwork, but we’re actually going to try and deliver it and demonstrate that we have it. So that’s one of the issues also for us.

We have, as you’ve heard, a monopoly on delivery of specialist care, in the sense that people cannot go anywhere except to emergency care, although in some places some specialists have tried to bypass this by introducing direct access for what are called at-risk patients, people like severe asthmatics in childhood, chronic respiratory obstructive patients and so on. But this has not proved to be very popular.

I don’t want to say any more about fundholding. I’m not sure that commissioning without money is going to get many GPs out of their beds early in the morning, but time will tell. But what to me has been the central ethical dilemma of fundholding is that when you’re in your consulting room with your patient, that’s the person who you are advocating for, that is the person who you fight for, that is the person who you want the best possible care for. You can then step outside your consulting room and look to get good care for the rest of your practice. Frankly, if you get better care for your patients than the guy down the road gets for his, then so be it. The problem then is when you step
back one step further and start talking to colleagues in other practices about how you get
the best care for the population in your district, you are in a dilemma. Because you do
then go back to your practice and fight tooth and nail for your own patients, and if they
can’t fight tooth and nail for their patients, then that’s bad luck. That has been a dilemma
and the rationalisation of that dilemma is something which has caused a lot of fundholders
a great deal of grief.

Talking informally with colleagues, there is clearly a cry for some sort of
centralised policy and planning of health, simply to work on an incremental basis from
where we are now. All I would tell you is that, in the United Kingdom, having started off
with a new government who promised that they would be policy-driven, their policy of
course was to beat the Conservatives, and now they’ve done that, they are stuck a little
bit, because they’re not quite sure what Plan B is, and certainly we’re not seeing much
sign of policy-making. I’m sure my colleagues from the UK would agree that neither are
we seeing much evidence that we can actually get to the table to help them make policy. If
that of course is the case, then we’ll be stuck as many of us are with political dogma, and
we’ll be stuck with just trying to make the best of the systems we’ve got.
General Discussion after Afternoon Panel:

The discussion opened with the panel chair commenting on the difficulty of the issue of primary care, that it is a blend of disciplines, but we train in different ways as well and we tend to define primary care around workforce, not practice. There appear to be a couple of agendas: 1) a practitioner or practice that is medically effective, and 2) social justice or equitable access to service. Medical effectiveness and social justice sometimes overlap and sometimes do not.

There followed a comment from the floor that the afternoon and morning speakers had moved too far from workforce policy and planning which should be concerned with training and distribution and making changes in training and policy. When asked to clarify, he replied that he was concerned that we not put more dollars into training but that we should concentrate on how to train the workforce better, e.g. to be more sensitive to things like ethnicity.

The next speaker commented on the situation in Winnipeg, population one million with 600 physician FTE’s. They have one capitated clinic with 14 doctors serving 28,000 patients which is a ratio of 1 doctor per 2,000 people. What will happen to these physicians, that is the ones that are not in the capitated clinics, who will be in surplus as more capitated clinics start up? Therefore, don't put more doctors into rural areas and don't gear up training programs but take advantage of the change in the doctor-population ratio in metropolitan areas as newer delivery models take hold. The training of nurse practitioners and midwives will only make the situation for surplus physicians worse. Also, in Ontario there's at least one clinic caring for 5,000 mental health patients, with only 0.25 FTE’s in psychiatry. If this concept is extended to other clinics, there will be a decreased need for specialists. The panel chair then commented that it seemed as though if we can constrain workforce growth, it would be a good idea.

A speaker from the UK then commented that all three countries seemed to be indulging in the same fashion. The issue in the UK, for example, was that the National Health Service is said to be primary care led, but what does this actually mean? There tends to be a lack of leadership in primary care, there tends to be little evaluation of practices, and there is no unbiased national database which shows what primary care physicians actually do. There have been attempts to tie money to the performance of GP’s, although the evidence base for this is poor, partly because it is difficult to measure. There is an inability to get more physicians into primary care, but why do we need them, given that we have more help from other disciplines? When looking at policy initiatives we should ask, is this just the fashion? What’s the evidence? Have we a golden opportunity here to change skill mix? He asked if we do know the effectiveness of inputs in relation to the difficulties of outcomes measurement. He asked why it is a problem to replace GP’s when we can use nurse practitioners and could go for larger list sizes.

The discussant replied that he didn't think that patients are getting better care - just more care. For example, there are now counsellors for the worried well but the worried well continue to come to the GP. John Fry always said a patient-doctor ratio of 1:4000 is manageable. With regard to NP's - at this time there is no training program in the U.K. Primary care practices are only able to recruit nurses. There is also no description of what
they should do - and at the same time, lots of primary care nurses are about to retire and can't be replaced with trained NP's. He expects an increase in medical school training. Another panel member then replied that there's no strong case for an increase in the number of general practitioners. There's limited evidence on the efficacy of primary care. GP or nurse primary care, for certain diseases, is not shown to be more cost-effective than secondary care, and recruiting more people into primary care practice does not seem to enhance the quality of care.

The debate then shifted as another panel member commented that there's good evidence that primary care reduces hospitalisations and increases good outcomes and the use of prevention measures. The challenge is to come up with good outcomes. How do we measure this Gestalt of a whole care model versus the single organ model? A conference participant remarked that there's a difficulty in providing good primary care in the current system in Canada since we need a different organisation of care and to readdress some of the problems of training.

Another conference participant raised the issue of training for primary care, as it appeared the three countries were offering conflicting advice. The Americans were advising primary care training, while the Canadians were saying no more GP’s and the UK were saying not only primary care, but more of it, if possible. A paper he had seen from three years ago, trying to predict the future, had stated that many primary care physicians would not be required. He wondered what the panellists had to say? The discussant replied that, as far as he was concerned, medical students should go into general practice. He is still practising in the career that he started in 1969. General practice means more hours, independence, working as a generalist and general practitioners are generally more prepared to live with uncertainty than are specialists. Another conference participant then added that the need for GP’s will continue to grow cause the public demands primary care from doctors. Right now we have shortages in rural areas and we can't get primary care physicians out of the metro areas. It's difficult envisioning areas in which the population knows which specialist to go to and the role of the GP in terms of an advocate or helper is not required.

One of the panellists then commented on the lack of primary care policy levers in the U.S. What are the effective policy initiatives to promote primary care, for example, exhortation or bribery or blunt instrument? There is federal financing for primary care but no accountability around how the money is spent. In the US the big player is the market. Planning does not appear to get it right. The US talks about underemployment but you still don’t really see it. In the US, 13-14% of students now go into family practice, but it used to be a much lower figure, and now others go into the other generalist specialities as well. He thinks that the market only operates at the margins and there will be no huge unemployment or loss of income for specialists. He went on to say that we can not talk about primary care in isolation. It is tied to speciality care. He asked if care in the UK would be different if they had more specialists? The panel chair commented that when he went into practice in 1969, GP practice was anathema at the University of Chicago, but generalism in medicine and paediatrics is now respectable. There is an upward trend in primary care despite gate -care is not important. Why is it that we would discuss reform of primary care without talking about specialist care? Maybe what we are actually talking about is a change in the whole system. A panellist replied that he, an American,
admires the UK system - but it is a system that is wedded to salaried remuneration and low numbers, neither of which is likely to come to America any time soon.

A participant commented that he was surprised at the direction of primary care in the US. There are powerful forces including HMO’s and the market in the US, which talk about the need to provide primary care to reduce cost. In Canada, the GP’s are the ones that US recruiters are looking for. There are also increased patient expectations that someone will look after them as a total and not as a collection of organs or body parts. Medical schools work in the abstract and are concerned about what students should learn. The Ministry of Health has ideas on funding and organisation, the profession has ideas about practice. We need more integrated planning between all three organizations which implies the risk of a loss of autonomy. Someone else then pointed out that health care reform in the US did not fail for lack of health services researchers. She went on to say that we must identify areas where policy change can make a difference and identify what other questions we are trying to ask in each country and where is the common ground.

It was then pointed out that the concept of primary care that emerged from the Alma-Alta Conference on Primary Care was aimed at developing countries and how to provide care to the relatively underserviced. In the UK, GP’s are paid more for having patients in deprived areas. Directing labour to areas won’t work. Squeezing those in the metropolitan areas won’t work either; they would just leave and go to another country. In the UK they tried parachuting physicians into underserviced areas. They took them shortly after training and placed them in difficult-to-manage practices under supervision. There was weekly support (this was a key issue), and also the ability to get academic input. Most have opted to work in these practices part-time, in Manchester, Liverpool and other difficult areas, provided that they can keep up with the weekly support. However, they don’t want to be full time. GP’s in the inner cities obviously need more flexible alternatives.

One of the panellists then commented that we need to talk about the efficient production of health. For example, there is a huge difference between a primary care system which screens everybody for cholesterol versus a system that only screens 2-3%. Primary care needs to play a broad role in allocating resources. For example, CLSC’s in Quebec were involved with gun control legislation, accident prevention and similar programs. In terms of getting physicians into underserviced areas, the Cuban model where doctors are assigned only seems to work in an autocracy. Paying more for those in rural practice does seem to have some effect, as do incentives for young physicians such as scholarships and loan repayments.

Lastly, the panel chair raised the issue of distribution. How could physicians be allocated to under-serviced areas? Some ideas have been a social security year or a return of service requirement. The Cuban model with assigned place of practice is very efficient. Two incentives have been used in the U.S. - pay more (i.e. some benefit from the Medicare bonus) or return of service through NHSC. It is possible that there are other options more palatable - to students.
Evening Plenary

Medical Workforce Policy and Planning in Australia

John Horvath
MEDICAL WORKFORCE POLICY AND PLANNING IN AUSTRALIA

Professor John Horvath
Chairman, Australian Medical Workforce Advisory Committee

Address to Second Trilateral Conference on Physician Workforce Policy

Vancouver, Canada
15-16 November 1997

Thank you. I am pleased to be here and honoured to have been invited to address the conference.

As the program says I have been asked to speak on what is occurring in medical workforce policy and planning in Australia. In doing so, I also intend to speculate on some of the challenges for us in this area for the future, which I trust you will find relevant not only to Australia but to all of the countries represented at the conference.

I am afraid that as with all medical workforce issues, the Australian situation requires consideration within the context of the type of health system we have in Australia. I am sure most of you are familiar with the basics, although I will summarise the structure quickly because I think that will contribute to a better understanding of the Australian medical workforce situation.

The Australian health care system

Australia is a federation of six States and two Territories. The powers of the national, or Commonwealth government are defined in the Australian constitution; broadly speaking those that are not specifically vested in the Commonwealth, remain the responsibilities of the States and Territories.

In the area of health care, a distinguishing feature of its organisation is the extent to which responsibilities are split between the three different levels of government. (And as an aside I should add the cost shifting between governments this split encourages). The Commonwealth government is responsible for the funding of medical services, aged care services and pharmaceuticals. The States and Territories are responsible for the provision of public health services, principal among which is the running of public hospitals, although because of its wider taxation powers, the Commonwealth makes a contribution to the cost of running the hospitals. Local government responsibilities vary but are mainly in the area of environmental control and home care services. In practice, there is considerable overlap in some areas, particularly aged care.
Payments by the Commonwealth to the States and Territories are usually made via tied grants through a system known as Medicare, which has operated since 1984. Medicare is funded through an annual levy on individual taxable income, currently set at 1.7%.

For the individual Australian citizen, Medicare entitles you to universal access to 'free' health care, either in a public hospital or through a practitioner. Medicare does this by reimbursing the provider at what is known as the scheduled fee, which is the amount set by the Commonwealth government as fair payment for a particular service. Providers are at liberty to charge above the scheduled fee, with consumers paying any difference.

Agreements between the Commonwealth and State and Territory governments provide for all Medicare beneficiaries to obtain inpatient and non inpatient care at public hospitals without charge. Medical care is provided for such public patients (at no cost to them) by doctors appointed by the hospitals.

Private health insurance is also available and it covers individuals or families who take out the insurance for private services provided in either public or private hospitals. Currently, approximately 30% of Australians have private health insurance.

Medicare is popular with consumers, but has obvious impacts on the medical workforce market place. It provides practitioners with a price floor in the market and to some extent a guaranteed income, although the level of income is of course related to throughput, given Australia's reliance on fee-for-service medicine.

**Characteristics of the current Australian medical workforce.**

As you can see, Australia is quite a large country in area, being a bit smaller than the United States or Canada, but roughly the size of Europe and the United Kingdom (See Attachment 1.)

Australia is a country of some 18 million people. It is a highly urbanised country, with most of the population clinging to the coastal fringes. Despite its vastness, much of the inland is desert or semi-arid. Rural areas account for most of area, but just 29% of the population. Most of the population is located on the eastern seaboard, including the three largest States of New South Wales, Victoria and Queensland, which account for approximately 60% of the total population. State populations range from six million in New South Wales, over half of which live in Sydney, to several hundred thousand in Tasmania and the Northern Territory.

To serve this population, Australia currently has a medical workforce of 46,111 practising clinicians. Essentially the workforce comprises four main segments:

1. 21,037 general practitioners, who provide primary care services; 22% of whom
Attachment 1
practise in rural areas. General practitioners currently comprise 45.6% of the workforce. Essentially they are private consultants working in either solo or, more usually, group practice. In rural areas, some general practitioners will also have hospital visiting rights.

2. 15,318 specialists, who quite obviously provide specialist consultation and procedural services. Specialists make up 33.2% of the medical workforce. 12% of specialists are located in rural areas. Specialists practice in either private rooms or hospitals, or most commonly in a mixture of both.

3. 4,468 specialists in training, representing 9.7% of the workforce. These are medical practitioners who have been accepted by a specialist medical College into an accredited training program.

4. 5,288 hospital non-specialists; these are non-vocationally-trained specialists who practice solely in public hospitals in salaried positions. Hospital non-specialists comprise 11.5% of the workforce.

Some other interesting characteristics of the workforce are:

- 27.2% of the current workforce is female
- 53.6% of female clinicians work in primary care (compared to 42.7% of male clinicians)
- Of the 15,318 specialists, only 14% are female, and in the surgical specialties only 3% are female
- 20.7% of the Australian medical workforce is aged 55 years and over (28.7% of the specialist workforce)
- 74.8% of the female workforce is aged under 45 years (compared to 49.9% of the male workforce)
- the average age of the urban medical workforce is 44.7 years and of the rural medical workforce is 45.4 years

The Australian Medical Workforce Advisory Committee (AMWAC)

You might be thinking, well, what is the Australian Medical Workforce Advisory Committee anyway? Essentially, we have been around for nearly three years now; we are basically a research organisation funded by government, reporting to the Australian Health Minister's Advisory Council and through it to Australian Health Ministers. We were formed to assist with the development of a more strategic focus to national medical workforce planning in Australia; and in one sense we grew out of a period of conflict between government and the
medical profession following several government reports that touched on medical workforce issues but were very much hostile to the profession, particularly a report by Professor Peter Baume of which some of you may be aware. A more co-operative approach was necessary to progress issues to resolution and at the same time, governments quite rightly recognised that many of the medical workforce issues actually required considerable research and better data before conclusions could be conclusively made.

The prime focus of AMWAC’s work is Australian medical workforce research and data analysis, although AMWAC also aims to provide workable policy solutions where appropriate. AMWAC’s role as a workforce planning agency is centred around examining:

- the structure, balance and geographic distribution of the medical workforce;
- medical workforce supply and demand;
- present and future medical workforce training needs;
- models for projecting future medical workforce requirements and supply; and
- development of medical workforce data collections.

The membership of the AMWAC comprises representatives from Commonwealth (Australian) government departments, State and Territory health authorities, the Australian Institute of Health and Welfare, the Australian Medical Council, peak organisations representing various sections of the Australian medical workforce (including the Australian Medical Association, the specialist Medical Colleges and University Medical Schools), and consumers. The Committee is supported by a small Secretariat based in Sydney.

I should hasten to add that the nature of the Australian system of government dictates that we are by no means the sole body; but we certainly operate at the peak national level and have a broad ranging terms of reference.

The aim of Australian medical workforce planning

In its very simplest form, we like to consider medical workforce policy and planning to be about ensuring the right people are in the right place, at the right time, with the right skills to competently and proficiently perform the tasks expected of them in accordance with world’s best practice. And whilst a strict balance between supply and demand may always be difficult to achieve in medical workforce management, planning to minimise the divergence between the two should not be that difficult.

From our perspective, to ensure that all Australians have access to quality medical services, the size of the medical workforce must be appropriate to the needs of the community. In very simple terms, too few medical practitioners will mean there is under-servicing, poor health outcomes, and overworked practitioners; too many practitioners and there is the likelihood of over-servicing and underemployment of practitioners. Both scenarios involve the nation in an unnecessary financial burden.
Key Australian medical workforce issues

At the present time the general view is that Australia has too many doctors and that many of these are in the wrong place. So, broadly speaking, we are currently dealing with issues of oversupply and maldistribution - both geographic and structural. (As an aside I should probably add that you can, however, come across views that consider Australia not to be oversupplied with doctors). This in turn, creates the paradox of medical workforce policy having to simultaneously develop ideas to deal with the somewhat mutually exclusive problems of surplus and shortage.

As a result, in Australia, planning for, and management of, the medical workforce is regarded by many as one of the most important challenges facing the health industry today. At the same time, because of the complexity of the medical workforce and the number of groups involved, medical workforce issues can be some of the most complicated and difficult issues in health policy, as I am sure you are all well aware.

The range of significant medical workforce issues around at the present time in Australia illustrates this point.

As I indicated, there is a general feeling that Australia has too many doctors. Yet many rural and remote communities are just as certain there aren't enough doctors or, if there are enough doctors in Australia, then some of them are certainly in the wrong place.

Junior doctors are expressing concern about future career options and are unhappy because they believe they are overworked, and that they may be unable to access training in the areas where they want to train.

Debate continues about the appropriate number of specialists in some disciplines, and in most about provision of services to rural communities.

University medical schools have been told to reduce their student intake, which in turn raises concerns about the future viability of some of the smaller schools. Medical schools are also increasingly focusing on how they select their students and the type of graduate they produce, which has led in recent years to a number of changes to the medical student selection process.

There is an array of extremely complex issues surrounding foreign doctor entry into Australia, and examination of such entrants to ensure they meet our standards of proficiency and skill.

Similarly, there is a range of potential effects associated with the increased participation of women in the medical workforce, none of which I should add are considered negative, but some of which may certainly change the dynamics of the workforce and the work place. On top of all this, consumers are often unhappy with a lack of timely access to services, and governments are constantly having to balance providing a quality service and better health outcomes with the available resources and the now ever present need to use the resources
more efficiently.

This of course is a listing that relates to the present; there are other issues that would arise if the nature of the Australian health care system changed, for example by a move to managed care. However, we have not got into modelling the effects of major policy changes, preferring to work within the structures of the here and now, rather than the what might be. That is not to dismiss the importance of maintaining an eye to possible future structural and funding arrangements; it is more a statement of the practical reality of the need for good quality data and research analysis on the present and the short term.

I should probably also point out that focusing more on medical workforce policy and planning, and integrating it into planning for the health system as a whole, is a comparatively recent phenomenon in Australia. In the past, workforce planning was largely ignored for a range of reasons, including the fact that the economy was always growing, as was the population. The post World War II demand for doctors was undoubtedly high and in any case, there were no reliable data or projection modelling around to inform the policy process. The lack of enthusiasm for planning probably also reflected a belief that the market would solve any problems so long as sufficient doctors were produced and trained.

The level of workforce analysis usually focussed on the simple need for more doctors as dictated by population growth, and the boosting of medical school intake to achieve this. At the same time, specialist practice was expanding, particularly as technological advance enabled, and indeed encouraged, greater sub-specialisation.

Yet, while the actual growth in numbers was comparatively unchecked, standards and quality have always been key issues for the profession and indeed can be traced back to the mid-1800's and early 1900's, when government devolved responsibility for overseeing medical practitioner registration to the profession through the establishment of State medical registration boards. Similarly, specialist medical Colleges have always had responsibility for overseeing the training and examination of specialist trainees.

In the 1980's concerns about the basically unchecked growth in the medical workforce began to surface. In part, this was clearly related to the slowdown in the economy and the comparatively rapid increase in government health expenditure. It was probably also related to a growing realisation that oversupply does not lead to redistribution. In addition, when data were called for, they were often found to be basic, non existent, inconsistent, patchy, or poorly collected. Hence, these factors combined to move us quickly into a phase which required better workforce planning.

Accordingly, over the past decade, we have moved to a situation where we now have some of what I consider to be the key factors for successful medical workforce planning in place: recognition of its need and the role it can play in informing policy; a national quantitative data collection on the medical workforce, which is derived from an annual survey which goes out with each doctor's annual registration renewal; and a peak research body, involving all key players, reporting to government, which aims to bring a national perspective and focus to
medical workforce planning.

To help you further appreciate the current Australian situation I thought I should run through the results of some of our research and then finish up with some speculation about challenges for the future.

**Australian medical workforce benchmarks**

Upon our establishment in early 1995, one of AMWAC's first tasks was to produce an overall strategic framework within which its work would be conducted; which would, at the same time, update a target of 200 doctors per 100,000 population that was adopted as a desirable medical workforce supply target by Health Ministers in 1992.

And, while benchmarks and the use of doctor:population ratios are sometimes criticised, it has to be recognised that in a strategic sense it is essential that benchmark supply is defined. Without any benchmark, rational workforce supply planning and management is not possible. The need for a strategic goal is also important, given the long lead time before the decision to act and the actual reaction. Without a strategic framework, a system of largely ad hoc planning and abrupt crisis management when absolutely necessary will, by default, become the preferred policy approach to medical workforce issues.

The resultant report - Australian Medical Workforce Benchmarks - published in January 1996, recommended that the 1994 benchmark for supply of medical workforce in Australia be 205 FTE clinicians per 100,000 of the population. The report was particularly significant because, for the first time in developing the benchmark, the quantum of work conducted by practitioners was examined.

It is estimated the benchmark will increase to 220 FTE clinicians per 100,000 population in 2005, 245 FTE clinicians per 100,000 population in 215, and 270 FTE clinicians per 100,000 population in 2025. To arrive at these estimates, it was assumed that the growth in demand due to population growth and ageing of the population will be 1.17% per year and that growth due to other demand factors will be 0.6% per year.

On the supply side it was assumed that:

- the number of graduates of Australian medical schools qualified for permanent residence in Australia will fall from the present 1200 per year to 1000 per year from the year 2002;

- average net addition of overseas trained doctors to the Australian medical workforce will be 200 per year;

- hours worked by male doctors will gradually fall by an average of five hours per week by 2025 (female hours worked will remain steady); and
the proportion of total medical practitioners who are female will gradually increase and comprise an estimated 38.9% of total medical practitioners in 2025.

The 1994 benchmark of 205 FTE clinicians also assumes appropriate distribution; and it compares to an actual number of 209 FTE clinicians in 1994.

You can see from the accompanying graph (Attachment 2), that if our supply and demand assumptions are correct, they translate into a situation where it is expected that Australia will see continued growth in supply in excess of benchmark requirements for the next ten years, after which there will be a gradual convergence to around 2019, when supply and demand are projected to move into balance, and from there into a situation of undersupply.

The benchmark was adopted by Australian Health Ministers in July 1996.

Perhaps more importantly, however, the report highlighted the degree of maldistribution in the Australian medical workforce. This is clearly a significant issue for the Australian health system, and Health Ministers agreed, in adopting the benchmark, that effective action to reduce maldistribution must be taken in the same time frame as any supply changes are made, that is over the next twenty years.

In summary, the data indicated that there are some 4,356 (2,911 FTE) too many general practitioners, principally located in the suburbs of Sydney, Melbourne and Brisbane and some 511 (445 FTE) too few general practitioners in rural areas, especially in New South Wales and Queensland (Attachment 3).

The evidence also suggests that in areas where there is an oversupply, the average doctor sees fewer patients, receives a smaller average co-payment, and provides more services per patient than the national average. In areas of undersupply the reverse applies.

Other issues highlighted by the disaggregated benchmarking exercise included an absolute shortage of specialists (estimated at 1,255 FTE), a shortage of non-specialist hospital practitioners (estimated at 360 FTE), and a shortage of locums (estimated at 150 FTE).

As well as highlighting oversupply and maldistribution as key issues, the benchmark work also showed there was a need for more information on several key areas of the Australian workforce, and a number of research projects were initiated. These projects are examining:

- the impact on the workforce of increasing female participation;
- the changing characteristics of medical students; and
- the requirements for sustainable specialist practice (both urban and rural).

Work on the later two projects is still underway so I am unable to report on any results, but we
have completed one of two planned reports on female participation. Some of the key issues raised in the first AMWAC female report were:

It is estimated that the proportion of female medical practitioners will increase from the current level of 27% to 38% in the year 2014 and to 42% in 2025.

At present, female clinicians are more likely to be working in major urban centres than male clinicians: 83% of female primary care practitioners and 93.0% of female specialists were working in capital cities and major urban areas, in comparison with 77.5% of male primary care practitioners and 87.3% of male specialists who were working in these areas.

On average, female clinicians work fewer hours per week than males, reflecting the higher proportion of females who work part-time. For females, the proportion working part-time was highest in the 30 to 44 years age group, coinciding with ages when large numbers of women substitute family commitments for labour force activity (in 1994, 46.8% of female clinicians worked part-time (defined as less than 40 hours per week) compared with only 15.3% of male clinicians. 65.5% of female primary care practitioners and 43.7% of female specialists worked part-time).

I should also add that the average hours worked per week by junior hospital doctors, specialists in training and full-time clinicians are roughly similar for both males and females.

Lower participation in the labour force and lower average hours worked mean that the average female medical practitioner has a significantly lower lifetime hours worked contribution than does the average male practitioner. For clinicians as a whole, the average female contribution is estimated to be 68% of the average male contribution. For general practitioners, this proportion is estimated at 63%, and for specialists at 75%, although this varies among specialties.

Despite efforts from the specialist Colleges in recent years, there remains, in the majority of specialties, a comparative absence of female practitioners and female trainees. Generally, young female clinicians are more likely to be training to become a general practitioner and less likely to be a specialist in training than young male clinicians, although some specialties are more popular with female practitioners than others. If the current preference for general practice continues to predominate, it could be expected to contribute to a continued shortage of specialists. (Specialties with high levels of female participation are psychiatry (21.2%), anaesthesia (11.5%), paediatric medicine (7%) and radiation oncology (6.3%).)

There is some evidence of a revealed preference from women patients for female clinicians, which is particularly prominent in care for reproductive health. It is a trend that we feel can be expected to continue, and as a result, there is some concern that those female clinicians practising may become overwhelmed by the demand for their services. This could be a particular problem in rural areas, where there is a shortage of female clinicians and sometimes a shortage of women’s health services.
### AUSTRALIAN MEDICAL WORKFORCE BENCHMARKS

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<th>1994 medical workforce</th>
<th>Estimated oversupply</th>
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<td></td>
<td>FTEs</td>
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<td>FTEs</td>
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<td>Total practitioners</td>
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<td>Primary care (GPs &amp; OMPs)</td>
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<td>Hospital non-specialists</td>
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<tr>
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<tr>
<td>Total undersupply</td>
<td>2,210</td>
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**Benchmark workforce** (= 1 - 2 + 3)

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**Benchmark workforce per 100,000 population** *

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<td>Practising clinicians</td>
<td>205.1</td>
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**Actual 1994 workforce per 100,000 population**

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<tr>
<td>Practising clinicians</td>
<td>209.0</td>
<td>229.0</td>
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* calculated on aggregated data
The second stage of our female participation research project is some retrospective qualitative research aimed at establishing the key influences on career choice and workforce participation decisions; that is, what factors might be responsible for the workforce looking as it does and whether there are any gender- and age-related similarities and/or differences. This work should be completed by the end of the year.

As well as the macro research projects, AMWAC is also progressively reviewing each of the main specialist workforces. These reviews were initially established because of concerns from government about shortages in several workforces and the impact these shortages were having on service delivery. As a result we have developed a methodology for describing the characteristics of the workforce, assessing the adequacy of the workforce, and projecting supply and requirements. If necessary, we then try to provide recommendations based on adjustments to training program intake that should move expected supply more into line with estimated future requirements.

To date, AMWAC has completed nine specialist reviews and there are a further six in progress. Our reviews have highlighted specialities that:

1. have current shortages (for example anaesthesia);
2. are likely to experience imminent shortages if not promptly corrected (for example urology and ear, nose and throat surgery);
3. are in a growth phase, because they are relatively new areas of specialisation, but will then taper off significantly (for example emergency medicine);
4. are not experiencing much requirement growth but have a large cohort of older practitioners moving through to retirement who will need replacing (for example general surgery and ear, nose and throat surgery, where 40% of the workforce is aged over 55 years); and
5. have current shortages of both practitioners and trainees and appear comparatively unattractive areas in which to work (for example rehabilitation medicine and geriatric medicine).

The overall trend to date has been a need for more specialists, which is consistent with the conclusions of the benchmark report. It is possible that some of the specialist workforces under review at present will not show much, or any, need for growth.
PROJECTED MEDICAL WORKFORCE, 1994-2025:
CLINICIANS - FULL TIME EQUIVALENTS

--- Supply (recommended scenario 5)
----- Demand (based on benchmark supply according to moderate demand assumption)
Policy responses

So out of all this work, what has been the response of government?

Well, at the macro level, the activity has continued to focus on the supply side, with the Commonwealth government introducing several changes to restrict growth in medical student numbers and the entry of foreign doctors into the workforce. Specifically these are:

Medical school intake, which is regulated through Commonwealth government funding of places, is currently restricted to approximately 1200 places per year; with the possibility of this failing to 1000 places by 2002;

Foreign doctor entry has been tightened through immigration points penalties and changed eligibility arrangements for temporary resident overseas-trained doctors’ ability to claim Medicare benefits; and

The continued examination of those foreign doctors who are allowed to enter Australia to ensure maintenance of standards and quality.

At the same time, the Commonwealth government has also introduced legislation requiring all new doctors to be vocationally trained to be eligible to claim Medicare benefits.

Similarly, at the more micro level, and particularly in response to the AMWAC specialist workforce reviews, which, as I indicated, have to date generally highlighted the need for more training positions in particular specialties, the relevant specialist medical Colleges have accredited extra positions and State and Territory governments, who are largely responsible for the funding of these positions, have ensured that the funding is available. This is of course a more long term solution; and it is the solution favoured by AMWAC.

On the issue of geographic maldistribution, all governments, both Commonwealth and State/Territory, have introduced a range of initiatives aimed at encouraging clinicians to go into rural practice. The focus has been very heavily on incentives, based around the provision of extra funding, and includes initiatives such as funding for additional rural-based vocational training places, financial incentives to work in rural areas, and support for continuing medical education. Most of the policy activity has also been focused on primary care providers. In addition, university medical schools have generally increased the number of rural-based medical students they accept. Increasingly, local government has also become involved, offering additional local financial incentives to attract practitioners, such as providing a house, surgery and motor vehicle.
CHALLENGES FOR THE FUTURE

I would now like to conclude with some thoughts on what I see as some of the possible challenges facing the Australian medical workforce over the next decade.

medical workforce planning is not just a numbers game

Increasingly we are finding that Australia now has comparatively well developed quantitative data collections, even if they have not been collected for too many years yet; but that we have little qualitative data to assist us to make some judgements on why the workforce looks as it does and assessments of what factors may be influencing workforce participation decisions. I know longitudinal qualitative research has been underway in the United Kingdom for some years now and I think that in Australia we will have to be looking to collect this type of information also. It is of course more expensive and time consuming to collect, but potentially of greater value in understanding the workings of the workforce.

the continued impact of increased female participation

I have already touched on this subject, but its impact cannot be underestimated. There is nothing wrong with the trend, but we all need to be aware that it will have an impact, both in terms of total numbers and in terms of geographic and structural distribution, and increasingly I think in terms of work practices. The particular problem for Australia in the short term is that whilst the number of female practitioners is increasing, compared to male practitioners, female practitioners have a preference for practice in the areas of the workforce that are oversupplied, that is urban general practice.

the changing attitudes of junior doctors, especially to their treatment in the workplace and training requirements

This appears as another universal issue. As with the United Kingdom, we are noticing that junior doctors are increasingly voicing concerns about long work hours, the nature of the training process, access to the training program of their choice, and the need for more family friendly, and therefore flexible, work arrangements. It is unlikely that all concerns will be resolved to their complete satisfaction, but in Australia they are certainly expressing a desire for reform in some key areas; and again any reform will have an impact on the workforce.

the changing entry requirements to university medical schools

Until recently, entrance to medical school in Australia was based almost exclusively on a student's score in final year school examinations, with the cut off for medicine being essentially the top half to one percent of any year. In the past four years, three of the ten Australian medical schools have moved to a graduate entry program, where selection is based on satisfactory completion of a first university degree and a medical school entrance examination. Most of the other seven medical schools, whilst maintaining an undergraduate program have also moved to incorporate interviews into the selection process. Increasingly, medical schools...
are also reserving places for students of rural background and Aboriginal background, in the belief that this will ultimately be of some assistance in alleviating the shortages in these areas of the medical workforce.

In the longer term it is expected that these changes in admission policies have potential to influence doctors’ lifetime workforce participation and on the nature of the medical workforce as a whole.

**rural retention**

Universally this is a problem, although possibly not so much for the United Kingdom. In Australia, whilst governments have introduced a range of incentives, many of these focus on obtaining rural practitioners and comparatively less on retaining them. In Australia the annual turnover remains high, particularly in the more remote areas where it is at about 30% of the workforce (in the less remote rural areas annual turnover is around 15% of the workforce). Most of the reasons are well researched and well known to us all. However, it would seem that the policy responses may still need to be better focused.

**Aboriginal workforce**

Associated with rural retention is the issue of an expanded Aboriginal health workforce and better access for Aboriginal Australians to health services. In Australia, the health status of Aboriginals, particularly those living in remote areas, requires urgent and innovative approaches to service provision.

**constant vigil to expand and improve data collection**

This is self explanatory; but in any listing of future challenges the point needs to be made. Without data you are left groping in the dark.

**importance of regular reviewing**

The medical workforce is dynamic. Again this is a simple statement that is well known to all of us; but what I think it means in the workforce policy and planning context is that you have to be constantly updating your profiles and projections of the workforce as new data become available and new trends are seen to emerge. It is especially relevant if national health structures and funding arrangements change, as the United States shows with the recent moves to managed care.

But even if change is not that dramatic, we have found there is value in committing yourself to regular review and update. In the Australian context, this has been especially useful in gaining the profession’s support for the notion of workforce planning. In a sense it means you can develop a direction but no one feels too locked in, and the flexibility this approach affords seems to provide comfort but at the same time actually assists with implementing reforms.
maintenance of political will

In Australia there is quite a degree of government involvement in the medical workforce. As a result the success of any work in this area ultimately requires the maintenance of political will; both in recognising the role government has to play, in the importance of data and research to the process, and in being prepared to act in a co-operative way with the profession.

Conclusions

So, in Australia, I can probably sum up the current situation on medical workforce planning and policy as being that, while we have some large challenges to overcome, we have several important things in place:

1. recognition of the need for good data, and data collections in place that provide reliable and credible information, particularly on the characteristics of the workforce;

2. a broad strategic framework in place to guide policy thinking through the development of national medical workforce benchmarks;

3. a medical profession which is largely onside and part of the workforce planning process; and

4. political will, with government prepared to fund research and implement suggested actions.

The challenge for both governments and the profession in the future is likely to be to continue this process, to make sure policy action involves everyone in contributing to a solution, and that the solution is always part of an accepted strategic goal. Ultimately, despite all the hard work associated with providing some definition of the size of problems and what could be causing them, it may prove that getting some numbers together was the easy part. It is always to be hoped that this is not the case; and I am sure that this sentiment would be viewed with universal approval by those of you from Canada, the United States and the United Kingdom.

Thank you.
Question and Answer Session after Evening Plenary.

What is the source of the graduates from foreign medical schools in Australia?

They used to be mostly from the UK, but this source has now dried up. This was followed by intake from India and South Africa but now they are coming in mostly from mainland China. Australia is a huge net gainer of physicians. They have a net gain of 500 physicians annually from overseas and 22% of the workforce are graduates from foreign medical schools, most of them from the UK.

What vocational training is available for rural physicians?

In the last budget the minister put out dollars for federally funded rural programs. Until the last budget, most rural incentives were local initiatives.

Australia has a right wing government and an oversupply of physicians, so why not simply reduce fees?

There has been no fee increase for general practice and a progressive decrease of the floor price over the last few years. Further fee decreases would not be accepted. Background practice costs increase a lot but fees have not increased.

The federal minister of health is a doctor. In Australia, is this an advantage or not?

He is neutral - and does not see himself as a doctor. Shortly after becoming a minister he fell out with the College and other medical organizations. He is not seen as a captive of the profession.

One of my moles told me Australia was adopting a national billing numbers scheme. What has been the effect of that in moving folks to rural areas?

It’s in place but it will take two years to assess the impact. Most new graduates have two years in training, after which their only options are rural training posts.

Are there a lot of FMGs in training?

Most in training are Australian citizens. Most FMGs who are non-citizens don’t stay. The issue can be confused by the guest workers, but by the year 2000 they are not to be regarded as medical practitioners.

How prevalent are user charges? Is this seen as creeping privatization?

Among urban physicians, 90% charge no co-payments. Approximately 90% of physicians’ income comes from the floor price and 10% from user charges. In rural areas, only 20% of doctors charge the floor price, the other 80% charge user charges. These figures are for general practitioners and would be different for specialists.. We don’t see this as creeping privatization.
Are you thinking you may want to maintain the oversupply in order to keep out privatization?

Take ophthalmologists - if you take out the top 15% who charge lots in co-payment, the rest earn less than most other specialists because they do not charge above floor price.

Is provider number limited to a community or does it go with the physician? Is there court action in place regarding billing number restrictions?

Provider numbers go with the physicians wherever they move, and they cannot be restricted by area. We can't do geographic provider numbers - it is against the constitution.

How many Aboriginal doctors are trained?

Overall there are 200,000 Aboriginal people in Australia and 15 in med school now. We have tried some extra education to bridge the gap between the normal education of these people and what they require for medical school. However, medical schools are far from tribal lands and people are unwilling to go. For example, in Queensland, three places in medical school were saved for Aboriginal people but they never managed to fill them all in one year and only 1/3rd made it into later years.

Is rural training provided for GP’s?
Now all medical schools must provide rural exposure.
Morning Panel

Substitution
AN ANALYSIS OF THE NON-PHYSICIAN CLINICIANS WHO PROVIDE "PHYSICIAN SERVICES"

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Craig L. Dietrich

Health Policy Institute
Medical College of Wisconsin
Milwaukee, WI 53226

Presented at the Second Trilateral Physician Workforce Conference
Vancouver, B. C., Canada
November 16, 1997
The delivery of health care services in the United States is evolving rapidly, not only in terms of its organization and financing but also in the ways that clinical responsibilities are being distributed among practitioners in the various health care disciplines. This latter trend follows a period of almost a century during which physicians held a virtual monopoly in the delivery of health care services, a monopoly that was created during the early years of this century by state licensing and regulation, enhanced during the century's middle decades by third party reimbursement, and facilitated over the past 20 years by the production of physicians in numbers that eclipsed any others who might enter their domain of practice. However, two important dynamics are changing the balance. First, recent changes in state laws and regulations are enhancing the ability of non-physician clinicians (NPC's) to practice independently within the domain of "physician services." Secondly, the number of NPC's now being trained is outpacing the production of new physicians.

The accelerated entry of NPC's into the health care workforce is occurring at a time when there is increasing concern about an impending oversupply of physicians relative to the demand for their services. Indeed, in some communities an oversupply exists already. Although the magnitude that this physician imbalance will attain over the coming years is debated, it seems clear that, at a minimum, a super-abundance of physicians will exist for a decade or more. It is less clear just how the growing supply of NPC's capable of undertaking the independent responsibility for patient care will have further impact on this physician imbalance.

**ELEMENTS OF INDEPENDENCE**

Six elements contribute to the ability of NPC's to practice within the realm of "physician services" (Figure 1):

First is state licensure, which establishes the right of NPC's to practice, although it neither assures their autonomy nor, by itself, delimits the scope of their practices. This right is granted not only through licensure but also through certification and registration or simply "approval to practice." Recognition in these latter forms acknowledges the education and training attained by nonphysicians and allows them to provide care within the bounds of their expertise. This generally is outside of the domain of physician services, unless delegated by a physician.
The ability to use titles such as "doctor" or "physician" represents the second element contributing to the independence of NPC’s. This right, which is defined in the licensing process, is seen as advantageous by practitioners in many of the nonphysician disciplines. The third and fourth elements are the regulations that define the scope-of-practice of each discipline and those that determine the degree to which clinicians may exercise their practice prerogatives independent from physician supervision. Both are codified within state practice acts. Licensing boards are the fifth element. In many states these boards oversee more than one discipline, but most disciplines seek to have a separate board for their discipline. The final element is reimbursement. This includes both the range of services that health plans cover and the ability of NPC’s to bill health plans for these services. All six of these elements have been the object of an increasing degree of state and federal legislative action over the past few years.

**THE REGULATED HEALTH CARE DISCIPLINES**

The health care disciplines are regulated in 51 jurisdictions (the 50 states and the District of Columbia). Thirty-six distinct health care disciplines are regulated in one or more of these jurisdictions. Two are the disciplines of medicine (allopathic and osteopathic medicine), and a third (homeopathy) is limited to other licensed professionals (physicians, naturopaths and chiropractors).

Ten disciplines strongly overlap the scope of physician practices and, like physicians, include the ability to take the principal responsibility for the care of patients (Figure 2). Six fall within the category of primary or general care, including three traditional disciplines [nurse practitioners (NP’s), certified nurse midwives (CNM’s) and physician assistants (PA’s)] and three alternative disciplines (chiropractors, acupuncturists and naturopaths). Four others fall within the realm of specialty care [optometrists, podiatrists, nurse anesthetists and clinical nurse specialists (CNS’s)]. It is these ten disciplines that are collected under the term “non-physician clinician” and that are the subject of further analysis in this paper.

In addition to these ten disciplines, a group of five disciplines overlaps, to varying degrees, the work-scope of psychiatrists (Figure 2). Although also non-physician clinicians, they are not considered in this analysis. The remaining 15 licensed disciplines (Exhibit 3) have less overlap with the work-scope of physicians, although clear exceptions do exist.
The purpose of this study is to assess the ten general and specialty NPC’s disciplines. It will examine the current numbers of practitioners in each of these disciplines, analyze their licensure and scope-of-practice, measure the size of their training programs, and project their numbers and the contributions that they are likely to make to the health care workforce in the future.

**Licensure (Figure 4)**

**Traditional NPC’s:** Separate licensure, certification or registration is afforded to NP’s and CNM’s in all jurisdictions except Illinois (which recognizes advanced practice nurses as registered nurses) and to PA’s in all but Mississippi. While licensure is most common, almost many of these jurisdictions offer only certification or registration for one or more of the disciplines.

**Alternative NPC’s:** Chiropractors are licensed in all 51 jurisdictions, but acupuncturists are licensed or otherwise recognized in only 33, and naturopaths are licensed in only 11. However, the number of jurisdictions recognizing these latter two disciplines has increased from 24 and 10, respectively, since 1994. Moreover, legislation that would result in the licensure of acupuncturists was considered in 10 additional states during the past year, and the licensure of naturopaths was considered in nine.

**Specialty NPC’s:** Optometrists and podiatrists are licensed in all 51 jurisdictions. However, nurse anesthetists are separately recognized in only 44 states and clinical nurse specialists in only 36 states.

**Separate Boards (Figure 4)**

All of the NPC disciplines have sought boards that are separate from the medical board and, preferably, are specific for only one discipline (or, in the case of nursing, for the nursing disciplines collectively). The reasons are clear. In the analysis of practice prerogatives described below, it was observed that the scope-of-practice and autonomy of each of the ten NPC disciplines was greater in states that had established separate boards than in states that regulated these disciplines through combined boards, and were least in states in which NPC’s were regulated by the Board of Medicine.
Traditional NPC’s: NP’s are governed by either a separate board or by a board specific for nursing in 48 jurisdictions. In the other three they are governed by a board that, although combined with other disciplines, is not the Board of Medicine. CNM’s are governed by separate boards in 40 states and by the Board of Medicine in two states. The converse arrangement exists for PA’s. The Board of Medicine governs PA’s in 38 states, and separate boards for PA’s exist in only six states.

Alternative NPC’s: Chiropractors are governed by separate boards in 48 jurisdictions, but in two of the other three they are governed by the Board of Medicine. The other two alternative disciplines are less frequently governed by separate boards. Acupuncturists are governed by the Board of Medicine in 13 of the 33 states that recognize their discipline and by combined boards in 9 states, but by separate boards devoted to acupuncture in only 11 states. Naturopaths are governed by boards that combine disciplines other than medicine in 6 states and by separate boards for naturopathy in 5 states.

Specialty NPC’s: Optometrists have a long tradition of independence, and in all but two states the boards governing them are specific to optometry. Although the majority of boards that regulate podiatrists are also separate, the Board of Medicine regulates podiatry in 25% of the states. Nurse anesthetists and clinical nurse specialists are governed principally by separate boards of nursing, but in 20% of states they are regulated by combined nursing and medicine boards.

TITLES

The titles "doctor" and "physician" connote positions of stature in health care. Although nurses and PA’s have not sought their use, practitioners in many other disciplines have coveted these titles. Most states permit chiropractors to use titles such as Doctor of Chiropractic (DC) or Chiropractic Physician (CP), but five states restrict their title to "chiropractor." Similarly, all states that license naturopaths consider them to be physicians and permit them to use the titles "Doctor of Naturopathic Medicine" (ND) or "Naturopathic Physician" (NP). However, among the 33 states licensing practitioners of acupuncture and herbal medicine, only three permit practitioners to use the title of "doctor," and most of the others require the title of "acupuncturist." Moreover, a number of states specifically prohibit the use of "doctor" by acupuncturists unless they possess a doctorate level degree.
In general, states do not designate the titles of "doctor" or "physician" for optometrists or podiatrists, although one Arkansas does allow the title "optometric physician," and six states allow "podiatric physician," podiatric surgeon" or "doctor of podiatric medicine." Nonetheless, it is common practice for clinicians in all three of these fields to use the title of "doctor" in daily practice. Thus, although referred to as NPC’s in this analysis, practitioners in many of the NPC disciplines are, in fact, "physicians," and the term NPC has been used to distinguish them from the larger group of MD and DO physicians.

**TRAINING PROGRAMS**

There has been an explosive growth in the number and/or size of the programs training NPC’s in many of the disciplines, particularly those associated with primary care.

**Traditional NPC’s:** The numbers of training programs for traditional NPC’s have increased substantially over the past few years. NP programs grew from 88 in 1990 to 132 in 1995, a 50% increment, and additional programs continue to open. CNM programs more than doubled over the past seven years, from 19 in 1990 to 50 in 1997; and PA programs increased by more than 50%, from 48 in 1990 to 76 in 1997.

The number of graduates from these traditional NPC programs has increased to an even greater extent (Figure 5). Between 1992 and 1997, NP graduates more than tripled, from 2,348 to 8,972; and further increases in the number of NP graduates can be anticipated based on the enormous increase in enrollment in recent years (Figure 6). CNM and PA graduates increased, as well. Graduating CNM’s grew almost four-fold between 1992 and 1997, from 110 to 430. During this same period, there was a doubling in the number of graduating PA’s, from 1,362 to 2,802. Collectively, the number of graduates in these three disciplines grew from just under 4,000 in 1992 to more than 12,000 in 1997.

**Alternative NPC’s:** Between 1990 and 1997, there was a 50% growth in the number of schools of acupuncture and herbal medicine (from 22 to 33), while the number of chiropractic colleges remained constant (at 16), and two new naturopathy schools were added (one last year), bringing the total to four. The number of graduates of schools of acupuncture and naturopathy increased in proportion to the increasing numbers training programs (Figure 7). However, despite the lack of a change in the number of chiropractic
colleges, the number of chiropractic graduates more than doubled, from 1,700 in 1992 to 4,100 in 1997.

**Specialty NPC's:** In contrast to the traditional and alternative disciplines, the number of training programs for specialty NPC's has remained relatively constant since 1990, although a new optometry school opened in 1997. Nonetheless, the number of graduates has had an upward bias (Figure 8). Graduating optometrists increased by 5% (from 1,170 in 1992 to 1,235 in 1997), and psychologists by 10% (from 2,081 in 1992 to 2,300 in 1997). The number of graduating podiatrists increased by 25% (from 513 in 1992 to 643 in 1997). Although the number of nurse anesthetist graduates more than doubled between 1992 and 1996 (from 160 to 387), this number declined slightly to 369 in 1997, and a continued decline is anticipated.

**CURRENT AND PROJECTED NUMBERS OF PRACTITIONERS**

Reasonably accurate estimates can be made of the number of practitioners in most NPC disciplines. However, estimating the number of NP's presents certain challenges. The 1996 National Sample Survey of Registered Nurses indicated that there were 71,000 nurses in 1995 who had formal preparation as NP's. Data from both the Sample Survey and the National Council of State Boards of Nursing indicated that approximately 53,300 of them had national and/or state certification but that only 77% of those who were certified (40,100) were working in positions with the title of NP. The current and projected size of the NP workforce has been estimated based on this smaller number of certified NP's who are presumed to be working as NP's. These figures for NP's do not include the 4,100 CNS's and 6,800 psychiatric CNS's in 1995 who serve different roles and who are accounted for separately.

Workforce estimates for all of the NPC disciplines other than NP's include the total number of trained and active practitioners. Projections of the future number of practitioners began with base year 1995 data. These data were adjusted over time for both the entry of new graduates into the profession and the loss of practitioners through death and retirement, based on the age cohorts of graduates and practitioners. It was assumed that, in all NPC professions other than nurse anesthetists (whose enrollment is declining), the numbers of graduates would continue to increase annually until 2000-2002, after which they would plateau.
**Traditional NPC's:** In recent years, the numbers of both PA’s and CNM’s increased substantially (Figure 9). However the greatest increase was among NP’s, whose numbers have grown from 21,500 in 1990 to 41,000 in 1995. NP’s are projected to increase further to 133,000 in 2005 and 230,000 in 2015.

The number of PA’s has steadily increased from 11,000 in 1980 to 19,000 in 1990 and to 29,000 in 1997. The number of PA’s is projected to almost double again to 54,500 by 2005, and, if high levels of enrollment continue, PA’s will increase to 83,000 in 2015. CNM’s also have grown in numbers, doubling from 3,000 in 1990 to 6,000 in 1997, and they are projected to almost double again to 10,500 in 2005 and continue to increase to 17,000 by 2015.

Collectively, these three groups of traditional NPC’s will grow from 1995 levels of 73,000 to more almost 200,000 in 2005 and more than 300,000 in 2015. This increment in the number of traditional NPC’s is also large when expressed in per capita terms (Figure 10). Considering PA’s, CNM’s and only those NP’s who are likely to be employed as NP’s, there will be an increase from 32/100,000 of population in 1995 to 70/100,000 in 2005 and, if current levels of production continue, to more than 100/100,000 in 2015.

**Alternative NPC’s:** Chiropractic is the most established of the alternative disciplines. Although there has been no change in the number of chiropractic colleges since the 1980s, the number of chiropractors has increased from 49,500 in 1990 to 56,400 in 1997 (Figure 9). Because of recent increases in enrollment, the pace of growth in the number of chiropractors is expected to increase, and the number of chiropractors is projected to grow to 97,000 in 2005 and, if the current high levels of enrollment continue, to 146,000 in 2015.

In 1990, there were 5,300 acupuncturists (excluding other professionals who use acupuncture), and this number almost doubled to 9,800 in 1997. However, the pace of growth is increasing, and the number of acupuncturists will more than double again to 22,000 by 2005. If the current pace of training continues, acupuncturists will double again to more than 42,000 by 2015.

There are many fewer naturopaths, and many of those in practice received their training not from the current four-year colleges but from more limited programs that existed in the past. In 1990 there were 800 naturopaths, and this number grew to 1,300 in 1997.
Growth in the number of naturopaths is projected to accelerate, and the total number of practitioners is projected to grow to almost 4,000 by 2005 and more than 7,000 by 2015.

The growth of the numbers of practitioners in these three alternative disciplines is also large when expressed in per capita terms (Figure 10). Collectively, they will grow from 24/100,000 in 1995 to 40/100,000 in 2005 and to 58/100,000 in 2015.

**Specialty NPC’s:** In 1990 there were approximately 26,000 optometrists, 12,500 podiatrists, 21,000 nurse anesthetists and 8,000 CNS’s. Unlike the general care disciplines discussed above, there has been relatively little growth in the number of specialty NPC’s (Figure 11). Between 1990 and 1997 the number of optometrists grew by 15%, nurse anesthetists grew by only 8%, and the number of podiatrists remained relatively constant. However, the number of CNS’s actually declined, from 8,000 in 1990 to 6,600 in 1995, coincident with a sharp increase in NP’s (although the number of psychiatric CNS’s grew significantly during that same period of time from 3,200 in 1990 to 6,800 in 1997). When expressed in per capita terms, the numbers of optometrists per 100,000 of population grew only modestly between 1990 and 1995, while the number of nurse anesthetists remained relatively constant, and the numbers of podiatrists and CNS’s decreased (Figure 12).

As in the recent past, continued slow growth is projected in these specialty disciplines over the coming decades. Podiatrists are projected to increase from 14,300 in 1995 to 19,400 in 2005 and to 24,000 in 2015 (Figure 11), but in per capita terms this represents an increase from only 5/100,000 in 1995 to 6/100,000 in 2005 and 7/100,000 in 2015 (Figure 12). Optometrists also will continue to increase in numbers, from 29,000 in 1995 to 38,000 in 2005 and to 45,000 in 2015 (Figure 11), but, like podiatrists, these changes are quite small in per capita terms (11/100,000 in 1995; 13/100,000 in 2005; and 14/100,000 in 2015) (Figure 12). CNS’s are projected to grow from 6,600 (2.5/100,000) in 1995 to 20,000 (7/100,000) in 2005 and to 27,000 (8/100,000) in 2015. However, the number of nurse anesthetists is actually projected to decrease from 22,800 in 1995 to 20,200 in 2005 and to only 15,400 in 2015. In per capita terms, nurse anesthetists will decrease from 9/100,000 in 1995 to 7/100,000 in 2005 and 5/100,000 in 2015.

**Data Modifications:** To create an integrated workforce model that considers physicians and NPC’s, a number of modifications must be made to the data presented above.
1 Patient care practitioners: With the exception of NP’s, the data presented above include all practitioners in each discipline who are trained and qualified for practice, whether or not they actually are practicing. A determination must be made of the percentage of the workforce actually engaged in practice. This would exclude clinicians who work at other professional tasks (e.g., teaching, research, supervision and administration).

2. Work effort: Not all practitioners work full-time, and workforce estimates must be adjusted to reflect full time equivalent (FTE) practitioners. In studies of physicians, it has been observed that, over the course of their careers, women physicians work fewer hours than men, older physicians have fewer patient contacts than younger physicians, and salaried physicians work less than self-employed physicians. It is uncertain whether these patterns also apply to NPC’s. However, many of the NPC disciplines are skewed to women (Figure 13). For example, women account for more than 90% of NP’s, CNM’s and nurse anesthetists and approximately 60% of PA’s, acupuncturists and naturopaths. In addition, while the average ages of graduates of optometry, podiatry and chiropractic schools are in their late 20s, other NPC disciplines attract older students, and, therefore, the age spectrum of practitioners is skewed to older individuals (Figure 13). Moreover, a high percentage of NPC’s work as employees of hospitals or clinics.

3. Roles of practitioners: Practitioners in certain of the NPC disciplines are able to move between roles in general care and specialty care, and their impact on workforce planning depends not only on their total numbers but also on the specialty choices they make. For example, most PA’s are trained as primary care providers, but approximately half serve in specialty roles. NP’s have similar opportunities. Similarly, NPC’s may shift the range of services that they provide. For example, chiropractors may limit their practices to manipulation for musculoskeletal disorders or expand their practices to encompass general primary care, and optometrists may limit their services to fitting lenses or expand them to therapeutic optometry.

4. Overlap with physician services: Many of the services provided by NPC’s substitute for the services that physicians provide, whereas other services (e.g., acupuncture and manipulation) may supplement rather than displace physician services. Similarly, only some of the roles played by NP’s and PA’s are within the arena of “physician services,” whereas other roles are of a nursing or adjunctive character. Much more work is needed to understand the tasks and services provided by NPC’s and to
appreciate the extent to which they displace the need for physicians or are supplementary to the services normally provided by physicians.

**SCOPE-OF-PRACTICE and AUTONOMY**

The scope-of-practice of licensed professionals is defined in a number of ways.

*First,* in legal terms, scope-of-practice is defined by the states through formal legislation and regulation.

*Second,* since regulations often are broad and ambiguous, scope-of-practice is defined informally by the latitude of practice that is accepted by the involved state regulatory boards and/or attorneys general.

*Third,* scope-of-practice in practical terms is defined by insurers who often limit the range of covered services to fewer than are permitted by law.

*Fourth,* scope-of-practice is defined by practice organizations, such as clinics, group practices and managed care organization, that determine both the range of practices that NPC’s will be permitted to undertake and the degree to which practice authority that is vested in physicians will be delegated to them.

*Finally,* scope-of-practice is defined by practitioners themselves, who commonly limit their activities to the range of practices they feel most competent to provide.

For physicians, the regulated scope-of-practice spans the range of medicine, as taught in medical school. However, scope-of-practice for other professions is more narrowly defined. The characteristics of practice that are generally regulated are those that have the potential of doing harm, either physical or emotional. They include:

1) Making and communicating a diagnosis;
2) Performing, ordering or interpreting diagnostic tests;
3) Entering an orifice or interior space of the body;
4) Setting or manipulating a bone or joint;
5) Administering a substance by injection or inhalation;
6) Prescribing a drug or device; and
7) Applying energy.

**Traditional NPC’s and Alternative NPC’s:** Figure 14 summarizes the scope-of-practice of the six NPC disciplines that provide general care. Most states permit the practitioners in each of these disciplines to perform a physical examination and make a diagnosis throughout the range of disease and dysfunction that falls within each practitioner's area of training and expertise. Practitioners in all disciplines other than acupuncture also have broad latitude in performing and interpreting laboratory tests and X-rays. Midwives and naturopaths are permitted to care for normal pregnancies, participate in normal deliveries and provide non-pregnant gynecologic care in almost all states, and to care for complicated pregnancies in many. In addition, suturing and minor invasive procedures are permitted for NP’s, CNM’s and PA’s in most states and for naturopaths in many. However, there is a considerable degree of variation in most of these practice prerogatives among the states.

The degree to which NPC’s may practice independently from physician supervision or delegation also varies considerably (Figure 15). NP’s have independent practice authority in almost half of the states. In most of the other states, authority may be delegated to NP’s by physicians. However, the delegating physician need not be on site and direct physician involvement can often be at widely spaced intervals. In only two states is the presence of a physician required for NP’s. Midwives have a similar degree of independence. In contrast PA’s generally practice under physician direction, although, as with NP’s, the "direction" may be intermittent and distant. Two states allow PA’s to practice independently, but through the use of approved protocols. Recent changes in Medicare, discussed below, have greatly expanded the independent settings in which Medicare will reimburse NP’s, PA’s, and CNS’s and greatly reduced the amount of physician supervision required. This is certain to have an important effect on the autonomy of traditional NPC’s.

In general, the practices of alternative NPC’s are independent of physician supervision or delegation. However, in 8 of the 33 states that license acupuncture, a referral from a physician is required before patients may undergo therapy, and three states require a physician on site.

**Specialty NPC’s:** Optometrists have long had privileges that include eye examination, diagnosis, prescribing lenses and other vision devices and removing superficial foreign
bodies from the eye. All states grant these privileges. Newer privileges that only some states grant include treatment of glaucoma (41 states), laser surgery (three states). In many states, special certification is required to practice "therapeutic optometry," and the extension of this right to other states is a focus of much of the recent legislation dealing with optometry.

The range of practice of podiatrists also is expanding. Historically, their privileges have, centered on the diagnosis and treatment of diseases and disorders of the foot (below the ankle), including medical treatment, fitting prosthetic devices and surgical treatment using local anesthetics. Other therapeutic privileges include mechanical treatment in 46 states, manipulative treatment in 29 states and electrical treatment in 28. However, the range of practice of podiatrists is increasing and now extends to areas above the ankle but below the knee in 29 states, to upper muscles of the leg in nine states, and to the hand in four states. In addition, ten states allow podiatrists to amputate toes.

Nurse anesthetists have included in their scope-of-practice the range of prerogatives necessary to treat pain and perform anesthesia in a manner similar to physicians, and in many smaller communities they are the sole practitioners capable of administering anesthesia. The scope-of-practice of CNS’s is defined by their training and supervision.

**PRESCRIPTIVE AUTHORITY** (Figure 16)

**Traditional NPC’s:** As with scope-of-practice, prescriptive authority varies widely among disciplines and among states. Most states permit NP’s, CNM’s and PA’s to independently prescribe non-controlled drugs and, to varying degrees, controlled drugs. However, a high proportion of states stipulate that this prescriptive authority must be delegated by physicians. In practice, this delegation often is with little of no direct physician involvement.

**Alternative NPC’s:** Naturopathic physicians have the independent ability to prescribe non-controlled drugs in 2/3 of the states in which they are licensed, and they have the added authority to prescribe dietary and herbal remedies in all states. These latter prerogatives also are available to chiropractors in almost all states and to acupuncturists in more than half of the states in which they are licensed. However, the prescriptive authority of chiropractors and acupuncturists is limited to these natural products, and
neither discipline has the authority to prescribe either controlled or non-controlled substances.

**Specialty NPC's:** Optometrists have prescriptive privileges in all states, but there is variation in the breadth of that authority among the states. In 19 states they are limited to topical medications, but in 32 states optometrists may prescribe oral drugs, as well, and in 24 states they are permitted to prescribe controlled substances, although there are limitations in some states concerning the range of schedules that they may use. In addition, four states permit optometrists to administer drugs by injection.

Podiatrists have independent prescriptive authority in all of the states, although in several states this authority is not codified in the state's practice act. The prescriptive authority of nurse anesthetists and CNS’s follows the pattern of NP’s, but more states limit prescriptive privileges for these disciplines than for NP’s (Figure 16)

**REIMBURSEMENT**

*Medicare and Medicaid*

**Traditional NPC’s:** Until the late 1970s, the reimbursement of NP’s, CNM’s and PA’s by Medicare and Medicaid was governed by the “incident to” provision, which allowed those who were employed by physicians to be reimbursed by means of payments to the employer. In 1977, the Rural Health Clinics Act extended Medicare and Medicaid reimbursement to NP’s and CNM’s working in freestanding, physician-directed rural clinics located in health professions shortage areas (HPSA’s). This subsequently was expanded to include other practice settings (e.g., homebound, nursing facilities, rural practices outside of HPSA’s and rural practices within HPSA’s but not in "rural clinics.") In addition, periodic on-site physician supervision was not required, if such a practice was permitted by the state.

Recently passed federal legislation has further expanded Medicare reimbursement to NP’s, PA’s and CNS’s to include all "physician services," regardless of the geographic area in which these services are provided and without any requirement for physician direction. Payment to NP’s and CNS’s will be direct, but payment for PA services will continue to be to the employer (Figure 17).
The rate of Medicare "incident to" reimbursement for NP’s has been at 100% of physician rates, and PA reimbursement has varied from 65% to 100% of physician fees, depending on the site of service. The recent Medicare legislation allows for the reimbursement of NP’s and PA’s in all settings (except hospitals) at a uniform rate of 85% of physician fees, with a 10% bonus in HPSAs.

The rates of Medicaid reimbursement for traditional NPC’s vary widely among the states. Like other insurers, states have the option to cover only some of the services that are provided by NPC’s, and, therefore, state Medicaid plans may cover fewer services than are permitted in the state’s practice act. Similarly, Medicaid policy regarding on-site supervision by physicians may be more restrictive than the state’s practice act requires. The federal mandate for Medicaid allows Family and Pediatric NP’s and CNM’s to bill directly to the limits established by the state, if they are allowed to practice independently in that state. Many states also reimburse NP’s other than Family/Pediatric, and some reimburse CNS’s. In some states, reimbursement for CNM’s is restricted to pregnancy care, but in others it covers any services within the CNM’s scope-of-practice (Appendix I). Medicaid reimbursement for PA’s in most states is to the employer, although Montana and South Dakota allow PA’s to bill Medicaid directly. Some states have unique identifiers and separate fee schedules for PA’s.

**Alternative NPC’s**: Chiropractors are allowed to bill Medicare, and new billing codes applicable to chiropractic have facilitated this process (Figure 17). In 26 states, they also are allowed to bill Medicaid. However, neither Medicare nor Medicaid currently covers acupuncture or naturopathy.

**Specialty NPC**: Optometrists and podiatrists are allowed to bill Medicare and Medicaid directly in a manner similar to physicians. Nurse anesthetists and CNS’s also are permitted to bill Medicare, CHAMPUS and other federal programs directly, and they are allowed to bill Medicaid directly in 36 states, although billing for both is commonly through the employer.

**State Mandates Affecting Private Insurers**

In many states, legislation has mandated that health insurers reimburse NPC’s for services covered by their plans (Figure 17). State mandates have directed private health plans to reimburse NP’s for covered services in 27 states, CNM’s in 37 states and PA’s in three
states. Among the alternative NPC's, mandated coverage of chiropractic services by private health plans exists in 44 states. In addition, all states mandate the coverage of chiropractic services by Workman's Compensation. Coverage for acupuncture is mandated in nine states and for naturopathy in two. State mandates also affect the specialty NPC, with mandated coverage for optometrists in 37 states, podiatrists in 30 and nurse anesthetists. These mandates are powerful elements in the growth of NPC practices.

In addition to these specific state mandates, twelve states have passed "any willing provider" (AWP) laws that, in general, prohibit health plans from denying access to any licensed provider whose scope-of-practice includes services covered by the plan and who is willing to meet the terms and conditions of the plan. Most are broad in their definition of providers and, therefore, cover all of the NPC disciplines. In some states, these laws cite specific disciplines. For example, optometrists and podiatrists are cited in two states, chiropractors in four and nurse practitioners in one. CNM’s are cited in legislation recently enacted in Virginia.

In 1993, the state of Washington placed into law the broadest and most comprehensive AWP act. Although it was subsequently overturned, its provisions are being adhered to by many health plans in Washington. This law stipulated that every category of health care provider be permitted to provide the health services that are included in the benefits packages of every health plan in the state (including employer health plans) to the extent that such services are within the providers permitted scope-of-practice. It further required that providers abide by the plan's standards for utilization review and cost containment, that they follow the plan's administrative and management procedures, and that the services provided be clinically efficacious. It is a model for those who favor AWP legislation.

State mandates that increase the access of patients to NPC's by increasing the access of NPC’s to reimbursement are high on the agenda of most NPC disciplines. This agenda is being pursued with increasing vigor in legislatures throughout the US.

**CORRELATION BETWEEN STATE PRACTICE PREROGATIVES AND THE NUMBER OF GENERAL CARE NPC's**

As is evident from the data presented above, NPC’s provide a range of "physician services" in an independent manner. However, both the range of services they provide and
the degree of independence that they possess vary among the states. There also is a considerable degree of variation in the numbers of NPC's practicing in the various states. The sections that follow assess this variability. They deal specifically with the "general care" NPC (i.e., traditional NPC's and alternative NPC). Specialty NPC's have not been included. This analysis follows the pattern of analysis of NP's, CNM's and PA's that was conducted by Sekscenski, et al (NEJM 331:1266, 1994).

**Variation in Prerogatives:** A system for "scoring" practice prerogatives was established for each of the six disciplines analyzed by assigning "credit" for licensure, scope-of-practice, prescriptive authority, access to reimbursement and practice autonomy. Figures 18 and 19 display the variation in "scores" among the states. The greatest homogeneity and the highest average scores are among PA's. NP's and CNM's present a bimodal pattern, with the mode of highest scores being similar to that of PA's. Chiropractors and naturopaths display a symmetrical distribution of scores, with the major clustered in the middle range and some states at each extreme. The 33 states that license acupuncturists are the most variable in their scoring patterns.

**Prerogatives and Practitioner Numbers:** Figure 20 demonstrate the relationships between the density of practitioners per 100,000 of population in each state and the "scores" in those states. As was observed by Sekscenski, et al, significant correlations exist between practitioner numbers and practitioner prerogatives, and these were observed for five of the six disciplines that were analyzed, and a similar trend was observed in the sixth (naturopathy). This observation suggests that, as the practice environment improves in various states, the numbers of NPC's practicing in those states are likely increase, as well.

**THE CONTRIBUTION OF NPC'S TO "PHYSICIAN SERVICES"**

Each of the ten NPC disciplines discussed herein have the ability to take the principal responsibility for patient care under various circumstances and to provide a spectrum of services that, to varying degrees, overlaps that of physicians. Practitioners in some of these disciplines are autonomous; others require supervision or referral. Some undertake the care of patients for a wide range of conditions; others are more narrowly focused. However, NPC's do not participate evenly throughout the entire spectrum of physician services. Rather, their contributions are concentrated within two of the following four levels of care:
1. **Simple licensed general care.** This level of care includes wellness care and the care of uncomplicated or self-limited acute disorders and of mild chronic conditions. It encompasses much of the care provided by primary care physicians, and it is the major area of independent care provided by the six general care NPC disciplines (NP’s, CNM’s, PA’s and the three alternative disciplines).

2. **Complex licensed general care.** This level includes the care of patients with severe illness of an acute, chronic or recurrent nature, often involving multi-system disease. It is the principal domain of primary care physicians, and it engages some of the effort of specialty physicians, but it does not involve NPC’s except through delegation from physicians. In that manner, it engages some of the effort NP’s, PA’s and CNS’s.

3. **Routine licensed specialty care.** This level includes the least complicated care provided by those clinicians who focus on specific groups of diseases, conditions or technologies. It is the major domain of both specialty physicians and specialty NPC’s (optometrists, podiatrists, psychologists and nurse anesthetists), and it also engages the effort of CNS’s and those NP’s and PA’s who have a specialty orientation.

4. **Complex licensed specialty care.** This level includes the care that is usually restricted to physicians and that usually requires the particular skills of specialty physicians. Although it is principally the domain of physicians, some NPC’s do participate in this level of care with delegation and supervision from physicians.

Thus, while NPC’s contribute to each level of care, their areas of greatest involvement are "simple licensed general care" and "routine licensed specialty care."

**Figure 21** compares the supply of general care NPC’s (NP’s, PA’s, CNM’s, and the three alternative disciplines) and of primary care physicians (family practice, general internal medicine, general pediatrics and ob/gyn) in 1995, and it projects the supply of these clinicians to the year 2005. This analysis counts all PA’s and NP’s as contributors to general care, although, as noted above, some participate in specialty care. Primary care physicians out-numbered NPC’s as contributors to general of care in 1995. However,
because of the enormous growth that is projected for NP’s, PA’s and chiropractors, they will become the largest groups of general care providers by the year 2005. Acupuncturists, naturopaths and CNM’s will add further to these numbers.

**Figure 22** compares the per capita supply of clinicians engaged in primary care and specialty medicine in 1995 and 2005. Primary care NPC’s include 90% of NP’s, 50% of PA’s and all CNM’s and alternative NPC’s. Primary care physicians include family practice, general internal medicine, general pediatrics and ob/gyn. Specialty NPC’s include the four specialty NPC disciplines plus 50% of PA’s and 10% of NP’s. Specialty physicians include all nonprimary care physicians except psychiatrists, since mental health NPC’s were not included in this analysis.

The projected growth in the supply of primary care NPC’s is much greater than that of primary care physicians (**Figure 22**). As a result, there will be more primary care NPC’s in 2005 than primary care physicians. The concentration of these NPC’s in the arena of "simple licensed general care" will magnify their role in relation to physicians within this level of care. Moreover, their actual involvement in providing physician services will be even greater than their numbers suggest, because their practice prerogatives are increasing at the same time.

In contrast, less growth is anticipated in the supply of specialty NPC’s, and the projected growth in the numbers of specialty NPC’s and specialty physicians between 1995 and 2005 is similar (**Figure 22**). However, even more important than their changing numbers are their expanding practice prerogatives. All of this combines to create a significant enlargement of the role of NPC’s in the provision of "routine licensed specialty care."

Physicians and NPC’s will have broad areas of overlap in the future (**Figure 23**). However, it is within the levels of physician services that have been characterized as "simple licensed general care" and "routine licensed specialty care" that NPC’s will make their greatest contribution, and it is in these areas that NPC’s will have the greatest impact on the requirement for physicians. In contrast, "complex licensed general care" and "complex licensed specialty care" appear to be the areas of practice in which physicians will continue to predominate in the coming years.
**Figure 1**

**ELEMENTS OF INDEPENDENCE**

- **STATE LICENSURE**
- **SEPARATE LICENSING BOARD**
- **TITLE OF "DOCTOR" OR "PHYSICIAN"**
- **SCOPE-OF-PRACTICE**
- **FREEDOM FROM SUPERVISION**
- **MANDATED REIMBURSEMENT**

**Figure 2**

**REGULATED HEALTH PROFESSIONS**

**PHYSICIANS**
- ALLOPATHIC PHYSICIAN
- OSTEOPATHIC PHYSICIAN
- HOMEOPATHIC PHYSICIAN

**TRADITIONAL NPCs**
- NURSE PRACTITIONER
- NURSE MIDWIFE
- PHYSICIAN ASSISTANT

**ALTERNATIVE NPCs**
- ACUPUNCTURIST
- CHIROPRACTOR
- NUTRITIONIST

**MENTAL HEALTH PRACTITIONERS**
- PSYCHOLOGIST
- PSYCHIATRIC SW
- PSYCHIATRIC CNS
- COUNSELOR (Alc. and Drug)
- THERAPIST (Marriage/Fam.)

**SPECIALTY NPCs**
- OPTOMETRIST
- PODIATRIST
- NURSE ANESTHETIST
- CLINICAL NURSE SPECIALIST

*Advanced Practice Nurses

**Figure 3**

**REGULATED HEALTH PROFESSIONS II**

- DENTIST
- DENTAL ASSJT. HYGENIST
- DIETITIAN
- EMERG. MED. TECH.
- MASSAGE THERAPIST
- NURSE
- NURSE, LICENSED PRACT
- OCC. THERAPIST
- OCC. THERAP. ASS'T.
- OPTICIAN
- PHARMACIST
- PHYSICAL THERAPIST
- PHYSICAL THERAPY ASS'T.
- RADIOLOGIC TECHNICIAN
- RADIATION THERAPIST
- RESPIRATORY THERAPIST
- SOCIAL WORKER
- SPEECH PATHOLOGIST

**Figure 4**

**SEPARATE LICENSURE**

<table>
<thead>
<tr>
<th>License Type</th>
<th>Lic</th>
<th>Other</th>
<th>Total</th>
<th>% Sep. Bd</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nurse Pract.</td>
<td>35</td>
<td>15</td>
<td>50</td>
<td>94%</td>
</tr>
<tr>
<td>Physician Asst.</td>
<td>26</td>
<td>24</td>
<td>50</td>
<td>12%</td>
</tr>
<tr>
<td>Midwives</td>
<td>22</td>
<td>28</td>
<td>50</td>
<td>80%</td>
</tr>
<tr>
<td>Chiropractors</td>
<td>51</td>
<td>0</td>
<td>51</td>
<td>94%</td>
</tr>
<tr>
<td>Acupuncturists</td>
<td>26</td>
<td>7</td>
<td>33</td>
<td>36%</td>
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<tr>
<td>Naturopaths</td>
<td>11</td>
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<td>11</td>
<td>45%</td>
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<td>Optometrists</td>
<td>51</td>
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<td>96%</td>
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<td>Podiatrists</td>
<td>51</td>
<td>0</td>
<td>51</td>
<td>70%</td>
</tr>
<tr>
<td>Nurse Anesthetists</td>
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<td>Clinical Nurse Sp.</td>
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**Figure 5**

**TRADITIONAL-NPC GRADUATES: 1992-1997**

**Figure 6**

**GROWTH OF NURSE PRACTITIONER ENROLLMENT: 1991-1995**

[Graph showing growth of nurse practitioners, physician assistants, and nurse midwives from 1991 to 1995.]
**Figure 13**

**AGE and GENDER of GRADUATES**

<table>
<thead>
<tr>
<th>Profession</th>
<th>Ave. Age</th>
<th>% Female</th>
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<tbody>
<tr>
<td>Nurse Practitioners</td>
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<tr>
<td>Midwives</td>
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</tr>
<tr>
<td>Physician Assistants</td>
<td>33</td>
<td>58%</td>
</tr>
<tr>
<td>Chiropractors</td>
<td>29</td>
<td>28%</td>
</tr>
<tr>
<td>Acupuncturists</td>
<td>38</td>
<td>60%</td>
</tr>
<tr>
<td>Naturopaths</td>
<td>34</td>
<td>68%</td>
</tr>
<tr>
<td>Optometrists</td>
<td>28</td>
<td>55%</td>
</tr>
<tr>
<td>Podiatrists</td>
<td>28</td>
<td>30%</td>
</tr>
<tr>
<td>Nurse Anesthetists</td>
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<td>94%</td>
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**Figure 14**

**Scope-of-Practice**

**TRADITIONAL and ALTERNATIVE NPCs**

<table>
<thead>
<tr>
<th>NP</th>
<th>PA</th>
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<th>Ch</th>
<th>Ac</th>
<th>Nat</th>
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<tr>
<td>Simple General Care</td>
<td>+++</td>
<td>+++</td>
<td>+</td>
<td>++</td>
<td>+++</td>
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<td>+++</td>
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<td>++</td>
<td>+++</td>
<td>+++</td>
<td>+</td>
</tr>
<tr>
<td>Uncomplicated Pregnancy</td>
<td>-</td>
<td>-</td>
<td>++</td>
<td>-</td>
<td>++</td>
</tr>
<tr>
<td>Routine Gyn Care</td>
<td>+</td>
<td>+</td>
<td>++</td>
<td>-</td>
<td>+</td>
</tr>
<tr>
<td>Perform Venipuncture</td>
<td>+++</td>
<td>+++</td>
<td>++</td>
<td>-</td>
<td>+++</td>
</tr>
<tr>
<td>Interpre X-ray, Lab</td>
<td>+++</td>
<td>+++</td>
<td>+++</td>
<td>+++</td>
<td>+</td>
</tr>
<tr>
<td>Prescribe Drugs</td>
<td>+++</td>
<td>+++</td>
<td>++</td>
<td>-</td>
<td>+</td>
</tr>
<tr>
<td>Prescribe Herbal Remedies</td>
<td>-</td>
<td>-</td>
<td>++</td>
<td>+++</td>
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**Figure 15**

**AUTONOMY**

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<th>Ind</th>
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<td>27</td>
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<td>Nurse Midwives</td>
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<td>34</td>
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<td>Physician Asst.</td>
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<td>5</td>
<td>43</td>
<td>2</td>
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<td>Chiropractors</td>
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<td>0</td>
<td>51</td>
</tr>
<tr>
<td>Acupuncturists</td>
<td>33</td>
<td>3</td>
<td>8</td>
<td>22</td>
</tr>
<tr>
<td>Naturopaths</td>
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<td>0</td>
<td>11</td>
</tr>
<tr>
<td>Optometrists</td>
<td>51</td>
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<td>Podiatrists</td>
<td>51</td>
<td>0</td>
<td>0</td>
<td>51</td>
</tr>
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<td>Nurse Anesthetist</td>
<td>51</td>
<td>8</td>
<td>25</td>
<td>18</td>
</tr>
<tr>
<td>Clin. Nurse Spec.</td>
<td>51</td>
<td>7</td>
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**Figure 16**

**PRESCRIPTIVE PRIVILEGES**

**Noncontrolled**

<table>
<thead>
<tr>
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<th>Disp</th>
<th>MD</th>
<th>Ind</th>
<th>MD</th>
<th>Ind</th>
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<td>17</td>
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<td>2</td>
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<td>Physician Asst.</td>
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<td>Optometrists</td>
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<td>27</td>
<td>0</td>
<td>24</td>
<td>0</td>
</tr>
<tr>
<td>Podiatrists</td>
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<td>0</td>
<td>0</td>
<td>51</td>
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<td>0</td>
<td>18</td>
<td>9</td>
</tr>
<tr>
<td>Clin. Nurse Spec.</td>
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<td>15</td>
<td>0</td>
<td>15</td>
<td>9</td>
</tr>
</tbody>
</table>

**Figure 17**

**REIMBURSEMENT**

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<thead>
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<th>Priv. Mandates</th>
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<td>No. of States</td>
<td>No. of States</td>
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<tr>
<td>Midwives</td>
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<td>Phys. Asst.</td>
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<td>3</td>
</tr>
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<td>Chiropractor</td>
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<td>44</td>
</tr>
<tr>
<td>Acupuncture</td>
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<td>9</td>
</tr>
<tr>
<td>Naturopaths</td>
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<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Optometrists</td>
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<td>51</td>
<td>37</td>
</tr>
<tr>
<td>Podiatrists</td>
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<td>51</td>
<td>30</td>
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<tr>
<td>Nurse Anesthetist</td>
<td>+</td>
<td>36</td>
<td>22</td>
</tr>
<tr>
<td>Clinical Nurse Spec.</td>
<td>+</td>
<td>36</td>
<td>0</td>
</tr>
</tbody>
</table>

**Figure 18**

**Distribution of Scores**

- [Graph showing distribution of scores]
LABOUR SUBSTITUTION IN THE UK

by

Sue Jenkins-Clarke

and

Roy Carr-Hill

for

2nd Trilateral Conference
on the Physician Workforce
14th - 16th November 1997
Vancouver, Canada.

Resource Allocation Deployment
    and Substitution
Centre for Health Economics
University of York
Heslington
YORK
Y01 5DD
England

October 1997
LABOUR SUBSTITUTION IN THE UK
by
Sue Jenkins-Clarke and Roy Carr-Hill

Synopsis of Paper

I Background and recent policy:

- wo/manpower issues
- changes in doctors’ and nurses’ workload
- boundary definitions and enhanced roles

II Recent Policy Developments and Substitution:

III What is Substitution?

- labour turnover
- nurses for nurses
  (a) moving towards skill mix
  (b) measuring the potential for substitution
- nurses for doctors

IV Evidence about Substitution:

- nurses for doctors in primary care
- nurses for doctors in secondary care
- nurses for nurses in secondary care

V Attitudes to Delegation:

VI Questions for Discussion:
LABOUR SUBSTITUTION IN THE UK

I Background and Recent Policy

Substituting one worker/one group of workers for another in the field of health care delivery means taking into account how to balance care delivery in order to ensure good quality, cost-effective care and it is this notion of balance which is central to the issue of substitution and skill mix. Care delivered to patients in acute and primary care sectors has undergone, and is still undergoing, rapid change in the UK, largely resulting from the emergence of the internal market and, in the primary care sector, from the advent of fundholding.

Recent policy developments influence, and are influenced by, characteristics of the health care workforce. Broadly speaking these latter fall into three main groups:

- manpower issues
- changes in doctors' and nurses' workload
- boundary definitions and enhanced roles

After a brief discussion of these issues, the paper is organised as follows. In the remainder of this 'background' section, we review very briefly the recent policy developments which have facilitated or put obstacles in the way of substitution. In the first major section, we discuss the theoretical and measurement problems raised in the discussion and empirical examination of substitution. The second major section of the paper reviews the UK evidence of actual substitution in three selected areas: nurse for doctor in primary care; nurse for nurse in secondary care; and nurse for doctor in secondary care. In the third section, we examine the expressed attitude of professionals to delegation. The final section of the paper sets out a number of issues which could be discussed based on this paper.

I.1. Manpower issues:

The NHS labour force picture is complex - within both the medical and nursing professions. Firstly, there have been several changes within the medical profession which have had an impact on the number of doctors working in the NHS. In the 1990's there have been two Medical Manpower/Workforce reports (a third one is due to be released towards the end of this year) - the first was published in 1992 and the second in 1995. The latter gives evidence of medical manpower shortages - particularly noticeable in some of the major specialities such as anaesthetics, paediatrics, obstetrics and gynaecology and psychiatry (Table 1).

In primary care there is also evidence of shortages - the numbers of doctors applying for GP training posts declined in the decade from 1,769 in 1983 to 1,653 in 1993 (MWSAC 1995) - coupled with a rise in the numbers of GP's taking early retirement (Macbride & Metcalfe 1995), and part time GP's, particularly female GP's (Leigh 1996) - (Table 2).

The situation vis a vis the nursing profession is no less complex. According to Seccombe and Patch (1995) the labour market behaviour of nurses has seen "significant change" over the last
decade and also there have been massive changes in nurse education. It is therefore difficult to identify trends in the numbers of nurses entering pre-registration courses but, overall, student intakes have fallen by 30% since 1987/88 and by 3,500 or 21% in the year 1994 alone.

The numbers of registered nurses working in the NHS have also been declining steadily; this downward trend became evident towards the end of the last decade, prior to the introduction of the internal market and is continuing. According to the Pay Review Body, there were 429,000 Whole Time Equivalent Nursing Staff working in the NHS in 1994 - the corresponding number in 1995 being 422,000. These figures mask idiosyncrasies in the nursing workforce - such as the differentials in employment patterns in the community nursing workforce where the numbers of district nurses employed by Trusts has stayed approximately the same, the numbers of health visitors have fallen (Department of Health, 1994) and the numbers of practice nurses have trebled (Atkin et al 1993).

I.2. Changes in doctors’ and nurses’ workloads:

Evidence presented to the Medical Manpower Standing Advisory Committee (reported in 1995) using evidence collected in the previous two years indicates that doctors’ workloads have increased - with particular reference to non-clinical activities (although this observation is stated to be “anecdotal” since there is no mechanism for objective measurement). According to the MWSAC 1995 Report the range of hospital consultants’ activities which have increased are:

**New activities:**

- involvement in negotiations with purchasers
- monitoring of contracts
- local negotiations on terms and conditions of service
- clinical and medical directorships

**Activities with increasing demand:**

- medical audit
- complaints and litigation

**Ongoing activities:**

- teaching and training
- continuing medical education
- academic activity and research
- national duties

The anecdotal nature of the evidence available prompted the Medical Workforce Committee to commission its own research which was undertaken in two regions in England and which solicited responses from 71 consultants on the nature of their increase in workload and how
these changes had manifested themselves over a number of years. Thus between 1989 and 1994, findings revealed that, in terms of hours/week, audit activities had increased from 0.38 hours to 1.32 hours, hospital management from 2.1 to 5.99 hours, unit/administrative management from 2.0 hours to 4.72 hours. This contrasted to the amount of time spent on research - a decline from 2.26 hours spent in 1989 to 1.36 hours in 1994. Teaching activities remained approximately the same over this time period.

In primary care, because of the independent contractor status of GP’s, more objective data are available to identify current workload patterns and trends over time. These data suggest that, since the beginning of the decade, the amount of non-clinical activities and practice administration have increased - one of the reasons for the amount of time spent on management being the co-ordination and management of Primary Health Care Teams (PHCT’s)!

However, Pedersen and Leese (1997) dispute this “evidence” of increased workloads, reporting that, at least with regards to increased activity due to the shift from secondary to primary care, there are insufficient data pointing to an increase in workload.

Detailed data are available on nurses’ workload, recruitment and retention, published by the Institute for Employment Studies and submitted to the Annual Pay Review Body. Seccombe and Patch (1995) report that there are year on year increases in the proportion of NHS nurses working excess hours during their last full working week - rising from 57% in 1994 to 61% in 1995, and that over three quarters of these nurses are classified as managers and clinical nurse specialists. Eighty-three per cent of higher grade nurses (grade H) reported working excess hours compared to 42% of grade C nurses. Looking at these data vis a vis hospital nurses’ workload compared to community nurses’ workload, Seccombe et al (1994) report that nearly two-thirds (65%) of community nurses record working extra hours in contrast to their hospital colleagues where 54% report working extra hours. Within this latter group, health visitors record working more excess hours than district nurses - there are no comparable figures for practice nurses.

Thus, in summary and as a background to recent policy changes, there are documented shortages of both doctors and nurses and increases in workload for both professions - although some of this evidence is anecdotal.

Both of these factors drive the debate in the UK surrounding enhanced roles and boundary definitions. Although role enhancement is not exclusive to the nursing profession, it is the nursing profession which has (largely) responded to wo/manpower shortages and increases in workload.
I.3. Boundary definitions, enhanced roles and teamwork:

The emergence of new professional groups (within nursing) is taking place in response, at least in part, to the changing requirements of health care delivery. For example, the creation of innovative nursing posts arose as a response to one Regional Taskforce Report attempt to reduce doctors’ workload and in general, recruitment onto nurse practitioner courses is rising. As well as the emergence of new professional groups within nursing itself, there are also increasing numbers of health care assistants being trained and employed to working alongside registered nurses.

In the hospital sector, a number of ‘nurse-led’ initiatives are evolving - such as nurse-led Care of the Elderly wards, nurse-led patient controlled analgesia, pre-admission clinics, outpatient clinics, minor injury services, cardiology day-care and many others.

In primary care, practice nurses are the main focus for enhanced roles - examples include health checks for elderly people (mandatory), screening and immunisation and vaccination. These activities form an integral part of the practice nurse’s job description in response to the requirements identified by the Health of the Nation White Paper (1992). Other examples of enhanced roles being undertaken by practice nurses relate to the treatment of minor illnesses, chronic disease management (with particular reference to asthma, diabetes and hypertension management).

Although emerging/innovative roles are clearly important when considering workforce and workload issues, they are not necessarily relevant to the issue of substitution and therefore examples will only be considered in this paper if they can be identified as emergent roles in response to substitution. Similarly teamworking (in primary care), although playing an important part of the process of interdisciplinary working within PHCT’s, is beyond the remit of this theme.

II. Recent Policy Developments

These three broad areas serve as the context into which the notion of substitution is grounded - but prior to considering this, there are some recent policy developments which have taken place in the UK and which influence substitution in the delivery of health care. Examples of these policy developments are:

- The GP contract and fundholding
- The New Deal legislation
- The Patient’s Charter
II.1 The GP contract and fundholding:

Reference has already been made in this paper to the anecdotal evidence that GP workload has increased since the advent of the GP contract and the organisation of primary care will be addressed in the session focusing on Primary Care Reform. With regards to the GP contract and substitution, fundholding has meant that GP’s are in a position to make more efficient use of ‘their’ personnel - in other words, GP’s are in a position to influence the workload content of their practice nurses whom they employ directly but not district nurses and health visitors.

In one study (Ribble 1995) an increase of 75% in practice nurse workload is reported since the introduction of the GP contract, with other authors reporting that this increase is focused on three main areas - namely, activities traditionally carried out by practice nurses such as dressings and other treatments in addition to extension of roles into such areas as travel clinic management and advice as well as chronic disease management - for example, shared care between the GP and nurse for asthmatics, diabetics and the treatment of hypertension (Jeffreys et al 1995).

II.2 The New Deal Legislation:

This legislation sets clear targets and timescales for the reduction of junior hospital doctors’ hours of work. The target date for this reduction in working hours was set at 1st April 1993 when a maximum average of 83 hours per week for those on on-call rotas, 72 hours per week for those on partial shifts and 60 hours per week for those working full shifts, came on stream.

The effects of this reduction in hours have clearly been felt by the nursing profession and are reflected in the creation of new occupational groups and limited expansion of existing roles. Examples of the former are cardiac surgeons’ assistants, transplant assistants and a variety of clinical support workers. Examples of the latter are surgical practice managers (where nurses do part of a house surgeon’s job), physiotherapy clinical assistants in neurosurgery, advanced cardiac recovery nurse practitioners (part of junior anaesthetic and surgical jobs) and surgical nurse practitioners (again part of a house surgeon’s job). The emergence of clinical nurse specialists will be discussed at a later point in this paper.

II.3 Patient’s Charter

The Patient’s Charter was introduced in 1989 and updated in 1996 in order to give ‘more power to the patient’. In principle, of course, this meant a diminution in the power of professionals; although many would question whether this has actually taken place or whether the Patient’s Charter is understood (Carr-Hill and Ng, 1992). In one particular instance, however, the Patient Charter runs directly contrary to the possibilities for substitution. Thus the patient in hospital is meant to be assigned a ‘named nurse’. This is clearly impossible on a 24 hour basis - and in practice, extremely difficult even during daytime weekday - but if there were to be pressure for a ‘named nurse’, then substitution would be inappropriate.
III WHAT IS SUBSTITUTION?

The term substitution is used to cover a wide variety of situations. In a classical Ricardian analysis, the focus would be on substitution between capital, labour and land. Whilst this is in some senses being revisited through debates about the environment, the main focus in health care literature is the substitution of less qualified (expensive) staff for more qualified (expensive) staff. This can happen in a number of ways:

III.1) Labour Turnover.

Labour turnover has been seen as an expensive problem requiring remedial policies. For example, NHS management and government were urged by professional bodies in the mid 1980s to introduce policies to reduce wastage rates amongst qualified staff and trainee nurses by 10% in order to reduce the expense associated with the ‘problem’ and to facilitate fundamental reforms of nurse education and training (UKCC 1986). The consequent introduction of a new clinical grading structure for nursing in 1988 was seen by the Pay Review Body for Nursing Staff and accepted by the Health Departments as a way of reducing turnover amongst existing staff as well as increasing recruitment (Pay Review Body 1988), although the Health Departments subsequently expressed doubts concerning the cost effectiveness of across-the-board pay increases as a means of responding to retention and recruitment difficulties (Pay Review Body 1989).

But of course, higher rates of turnover provide opportunities for employers to reduce or amend the composition of the workforce. Existing personnel at the top of the pay scale may be made redundant and replaced by new recruits at a much lower point on the pay scale. Moreover, substitution of a new worker can increase productivity by securing better matches between jobs and workers and some inflow and outflow can be a healthy way to encourage innovation within an organisation. Unfortunately, the evidence in relative productivity - and the likelihood of innovation - of new as compared to long-standing workers is nearly all anecdotal. At the same time in financial terms, a higher rate of turnover can offset the effect of incremental drift on the total salary and wages bill.

The disadvantages of a high rate of turnover are administrative (location, selection and training of new workers), and potential output losses whilst the vacant post remains unfilled (or whilst new workers are ‘underperforming’). But the ‘output losses’ often do not occur because there are temporary replacements, and whilst there is the possibility that the new worker ‘underperforms’ because of inexperience relative to the worker s/he has replaced, these ‘losses’ may well be recouped in higher productivity subsequently. Moreover, the frequency and length of sickness absences of retained workers may increase with longevity because of boredom, etc.

Indeed, in purely financial terms, extrapolation of calculations by Gray et al (1996) suggests that substituting cheaper labour would be highly cost-efficient (see Box 1): high cost-savings
ratios are a ‘good thing’ if you are reducing expenditure. Of course, if the quality of the work is affected, that is a different story.

**Box 1: Financial Costs and Benefits of Replacement Labour**

**Average Cost of Turnover**

Looking only at administrative costs, and assuming no productivity losses, Gray and Normand (1990) find an average cost per turnover event of £494. Buchan and Seccombe (1991) estimate, with temporary replacement costs removed, averages £4,398.

**Cost-Effectiveness of Pay Increases**

If a Trust has 200 full time registered nurses and there is an annual turnover rate of 15%, direct turnover costs range between £17.8K and £158K. Other work has shown that average elasticity with respect to relative pay was -1.15, indicating that a 5% relative improvement in relative pay would reduce turnover and total associated costs by 6%.

Across the board increases of 5% would yield cost savings ratios of between 166:1 and 19:1 - not very effective. Targeting increases on groups with especially high turnover may be much more cost-effective but there may also be indirect turnover costs associated with sickness absences and for successful Trusts, with promotion. (Gray et al 1996).

III.2) **Nurses for Nurses**

a) *moving towards skill mix*

There is a tradition of a ‘hands-on’ nursing culture in Great Britain, with its implications for patient care and the number of trained nurses needed. But skilled nurses are an expensive commodity.

The increasing concern in the 1980’s for cost and for quality assurance in nursing has led many nurse managers to address the relationship between staffing numbers, the mix of their staff, workload and standards of care and the potential for substitution. However, progress in implementing reliable and agreed staffing systems was, and still is, slow. The NHS Management Board commissioned a review of service quality in relation to how nursing time was actually spent. Results from the secondary analysis indicated considerable variations between hospitals, between wards in the same hospital, between wards of the same speciality, and between and among grades of nursing staff. The study concluded that the key components of the efficient and effective use of nursing resources included: valid and reliable
patient dependency/workload measures; agreed and measurable standards of care; and a mix of nursing skills related to patient care. Not much has changed.

In order to assess the potential for substitution (or to allow for 'extended roles'), the more technical aspects of nursing need to be identified and distinguished from other more basic tasks which can be undertaken by less or unqualified people. Both substitution and extended roles are legitimate, provided that the tasks are within the capabilities of the performer.

(b) Measuring the Potential for Substitution

There are several issues involved in measuring the potential for substitution and the way in which this might influence the quality of care which are rarely explored in detail.

The first measurement problem is to decide on the appropriate indicator of skill. Should one be concerned only with (paper) qualifications, or only with grades, or only with the nurses’ experiences, or only with competencies, or with some mixture of all four (and possible others). Although the ‘correct’ approach is to assess the competencies for a given set of tasks, the managerial problem tends to focus on the mixture of grades.

The second major problem is the level at which substitution is to be measured. From the patient’s point of view, she or he receives care from a mix of staff both in any given procedure and over different finite periods up to their total length of stay. From the staff’s point of view, care is delivered to the patient by a certain mix of staff both at the level of the procedure and during fixed finite periods such as a (nursing) shift, a day, a week or a year. From the point of view of a ward or hospital manager, the staff skill mix is instantiated in the pattern of staff on a shift or over a given working week or as defined in the ward or hospital establishment.

Once again, the discussion in the literature is not helpful. It is often unclear which level is being considered when substitution is discussed; indeed, sometimes, it seems to be presumed that if the establishment mix is set then that is what the patients will receive. However, if the focus is on the effectiveness of nursing care, then the analysis has to be at a level where the quality of nursing care can be measured. Given the constraints on collecting data, this can be at the level of an interaction with a patient or over an observation session or over a shift or day in a ward.

The third issue is the problem of measuring mixtures themselves. That is, assuming that skill is appropriately indexed by clinical grade and that the focus should be on actual staff on duty rather than on the establishment, then the problem is to find ways of summarising varying numbers of different grades in an overall index which is fit-for-purpose (Carr-Hill et al, 1992)

Regardless of the form in which skill/grade mix is reported, there is the more fundamental problem of external validity - does the data/grade mix actually measure the relative inputs of the different grades? Throughout the research reported later in this paper, the contribution of each grade to the total process of direct care was measured by the number of times that grade occurs in the ratings on the Qualpacs
is not defined as each grade’s contribution to the total care process, but whether or not an item in the Qualpacs form are judged to be relevant to what a nurse is doing. Several sorts of bias might result. The most serious is if the items in the Qualpacs were biased towards the behaviour of a particular grade - e.g., if the ways in which learners and grade Fs perform the same type of interaction cause the higher grade to get the more ratings. A similar problem arises if the interactions themselves attract different numbers of ratings and certain types of interactions tend to be performed by particular grades. The contributions of those grades may then be consistently under or over-rated. The theoretical but Herculean solution to both of these is to develop a new and very detailed type of activity measure which divides nursing procedures and interactions into constituent parts and observe which of these are performed by each grade.

### III.3 Nurse for Doctor

The examples considered here are in primary care where the issue is the extent to which the practice nurse can substitute for the general practitioner. Whilst there might, in theory, be several dimensions on which it would be appropriate to measure the mix of skills, in fact, in English data, there is very little evidence about the numbers and nature of staff attached to a general practice, let alone about their experience, qualifications and skills. In the study reported below, we felt therefore, that the only possible approach to defining ‘skill mix’ was in terms of the ratio of practice nurses (P/N) to general practitioners (GP’s). This is clearly very crude and does not represent the real potential or lack of potential to substitute one professional group for another. This research was also commissioned by the Department of Health - in response to anxiety relating to medical manpower issues referred to earlier in this paper.

### IV EVIDENCE ABOUT SUBSTITUTION

Evidence about these areas is briefly reviewed below.

#### IV.1 Nurse for Doctor in Primary Care:

The roles of community nurses and particularly practice nurses are evolving rapidly. This evolution has been given extra impetus resulting from the GP contract in 1990. In order to meet contractual requirements, 51% of GP’s surveyed had created a new post, 83% had expanded the role of existing nurses and 22% were considering buying nursing time from their local health authorities (Robinson et al 1993).

Robinson et al also reported that the majority of GP’s surveyed (90%) wished to see the role of the practice nurses extended but they were less sure about extension to the role of independent practitioner status (only 30% felt that practice nurses should be independent practitioners). Nearly 90% of GP’s surveyed felt that directly employing nurses to run health promotion clinics, adult health checks (every three years) and new patient registration checks
was justified. The perceived barriers to the extension of this role were lack of space in practice premises - although this contrasts with a study undertaken by Greenfield et al (1987) who cited lack of training as being the main barrier to the role extension of practice nurses.

Little mention is made of the role for the nurse practitioner in Primary Health Care Teams. Part of the explanation for this omission is that there is considerable confusion as to the definition of this role - see below (Attitudes to Delegation). Another reason may be the perceived reluctance of GP’s to embrace the notion of ‘independent practitioner’ status. Robinson et al found that, of the 30% who felt that nurses should be independent practitioners, the majority had been qualified for less than 10 years. The only evaluation of nurse practitioners carried out in the UK (Touche Ross, 1994) reported role confusion and considerable workload diversity amongst those practising as nurse practitioners. The authors concluded that the greatest scope for development of this role lay in the primary care setting. A randomised control trial of nurse practitioners is currently being carried out.

The York study collected a wide range of data in order to examine the potential for delegation (see Box 2). We found nothing had changed vis a vis role clarification for nurse practitioners. GP’s were prepared to delegate (parts of) 39% of their consultations and 17% of them in their entirety, from a total of 836 consultations observed, but by far the main recipients of this potential delegation were practice nurses. The 51 GP’s participating in the study were invited to identify personnel to whom activities could be delegated - a ‘wish list’:
only 125 consultations (or 15%) could have been delegated to members of an enhanced team (this included a nurse practitioner). This contrasted with 225 consultations (or 27%) which could have been delegated to members of the current team.

In terms of what GP’s were prepared to delegate, the results were surprising - the greatest proportion of delegatable opportunities fell into advice and reassurance - whether to the current team (22%) or the enhanced team (26%). The potential for referral to the current team was also substantial for screening (16%), skin complaints (12%) and prescribing (12%). The enhanced team was mentioned for referral for contraception (15%) and, to a lesser extent, for the treatment of muscular and skeletal disorders. These results beg a number of questions - with particular reference to referrals for advice and reassurance - such as:

• could it be that doctors (mainly male) perceive nurses (mainly female) as the more caring gender and therefore better equipped to undertake this activity?

• or is it that doctors perceive nurses as having more time to spend with patients than they themselves do in busy surgeries?

• or is it that doctors’ disease-oriented training leaves them feeling inadequate in performing this role?

These findings suggest that mechanisms need to be identified and acted upon. Examples of such mechanisms are being put into place currently, albeit in a somewhat ad hoc fashion. One
example is that of triage - but this still begs the question as to who should be the most appropriate person to carry out this function?

The results of the York study present some challenges to community nursing - particularly to practice nursing (whose future appears to be secure) and to the development of nurse practitioners (whose future is still to be shaped). Resources and training clearly will be instrumental in shaping this future but these are topics beyond the remit of this paper.

**Box 2: Data Collected in York Study of Skill Mix in Primary Care:**

- 836 consultations observed by research nurses
- 51 GP's completed workload (DDRB) diaries and delegation diaries
- 77 nurses completed workload and delegation diaries
- c.2000 patients completed questionnaires on their general attitudes to the practice
- for each practice, data on structure and management of the practice
- for each professional member of the team, basic demographic data and their views about teamworking (n 208)
- for asthmatics (n 1,100) and diabetics (n 280), information extracted from medical records to accompany responses to self-completed postal questionnaires

Also qualitative data were obtained from FGDs

**IV.2 Nurse for Doctor in Secondary Care**

The effects of the New Deal legislation has already been introduced in this paper in terms of the emergence of new innovative roles for nursing. The reduction in the numbers of hours worked by junior hospital doctors can only be achieved if other (cheaper) categories of staff take over their functions. The main potential category of support workers are, of course, nurses.

There is only scattered evidence on the nature and pattern of junior hospital doctor activity and hence on the possibility for delegation. Whether there is, in fact, any possibility in practice for other members of the ward team to substitute for some of the doctor’s hours depends not
only on their skills and mix of clinical and non-clinical skills required and their potential effectiveness, but also on the extent to which they fulfil their other roles and responsibilities.

As in the primary care setting, there are possible disadvantages of delegation which should also be considered by the teams - for example there may be loss of 'whole person' care and perceived anonymity - all of which may reduce the overall quality of care. Again, in both settings, these dis-benefits also contradict the ethos of the Patient's Charter; although, actually, the existence of holistic 'whole person' care - and even the building of a 'good' doctor/patient relationship - is perhaps more an expression of optimism rather than of serious concern to the patient.

Given these caveats, it is perhaps not surprising that scientific enquiry into delegation in our hospitals would be fraught with difficulty and that a different approach should be sought. Thus Murray et al. (1995) evaluated new nursing posts created in one region designed specifically to help reduce the workload of doctors in training. Inevitably this was a complex evaluation involving the evaluation of 32 nursing roles in 16 clinical specialities in 18 different hospital trusts or directly managed units. These clinical nurse specialists were:

- nurse co-ordinated termination of pregnancy services
- nurse-led patient controlled analgesia
- nurse-led pre-admission clinics
- nurse-led outpatient clinics
- nurse-led minor injury services
- nurse-led emergency psychiatric assessment
- nurse-led cardiology day care
- nurse-led teaching leading to role expansion for all qualified nurses

The posts seeming to have had the most success in achieving objectives, reducing junior doctor workload and improving services to patients was the pre-operative assessment group - although no group had a major effect on actual hours worked. Of the 129 junior doctors surveyed, 17% felt that their hours of work had reduced, but half felt that the intensity of their work had declined. Forty per cent stated that they were more satisfied in their work. Sixty four consultants responded to the postal questionnaire noting that they felt a greater impact than their junior colleagues!

An outcome of this pump priming work is that junior doctors and nurses working in these innovative posts share activities such as phlebotomy, cannulation, clerking, assessing, investigating, treating and discharging patients, counselling, pain relief and speciality related procedures.

The fact that these posts were created by a region allocating £500K means that, in the current cost-constrained climate, any further implementation will be viewed with caution despite favourable results.
IV.3 Nurse for Nurse in Secondary Care

The research reported here was also commissioned by the Department of Health, and was undertaken prior to the Skill Mix in Primary Care Study already referred to. The objectives were to:

- develop and field test measures for monitoring the quality and outcome of nursing care.

- to identify the major input and process variables which need to be taken into account in monitoring the impact of nursing skill mix.

- to investigate the links between different skill mixes and the quality and outcome of the care provided.

- to relate the full costs of different skill mixes to both the quality of care and to the outcomes for patients of that care.

The study was carried out in hospitals. During the first week at each site, selected nurses were trained in the use of the research instruments. Data collected for the analysis in the study were recorded from the second week’s observation on the ward. Each day was divided into four sessions of three hours which comprised two periods of two hours for direct observation of nurse/patient interactions and one hour of indirect observation which included listening to and evaluating verbal reports from nurses or studying and assessing nursing records. Observers were allowed to take a break of one hour between periods of observation. No observations were made between midnight and 5.30 am because the pilot studies had shown that there were not enough nurse/patient interactions to justify employing observers. The inclusion of weekend days in the observation period ensured that there was sufficient coverage of periods of both high and low activity. This coverage meant that typically 8 patients could be observed for each day on each ward and 48 patients were observed in each ward during the week.

Altogether the following data were collected:

359 completed Qualpacs forms
720 completed outcome measurement
90 dependency and workload measures forms
15 ward profiles
360 activity sample forms
248 completed staff questionnaires.

In assessing the effects of substitution of less qualified for better qualified nurses, we have to distinguish between the way in which the overall mix of staff affects quality of care and how the quality of care delivered by a given grade of nurse may be influenced by the combination of grades involved. The data analysis also has to distinguish between these possibilities.
Effectiveness of a Particular Grade in Different Combinations

There are substantial variations in quality and outcomes of care between the 15 wards which, on a superficial level, are related to the qualifications of staff (see Figure 1). When the data were broken down by different Qualpac section, the care given by higher grades was rated higher than the care given by lower grades. This general result - that higher grades give better quality care - is diluted at broader levels of aggregation because staff act in groups with varied skill mix.

Overall, we found that the skill mix context had three main effects: an averaging effect on the quality of care delivered by highest and lowest grades; a reinforcing effect on the quality of care delivered by intermediate grades; and the differentiation of the kinds of tasks performed by each grade.

There was also a strong ward effect at each of the lower levels of aggregation (Qualpac session, interaction and rating); and, at the (basic) ratings level of analysis there was a statistical interaction such that the overall ‘grade effect’ varied between wards.

Lessons about Measuring Skillmix

There was a strong association between measures of training and previous experience although this does not imply a uniform relationship between skills and experience. Indeed, although there was a tendency for the higher grade staff to carry out the more complex tasks, this was not clear-cut. A variety of different ways were used to measure skill mix. Although it made little difference to the overall results, there clearly were some specific grade combinations which delivered better quality care overall, which makes it difficult to devise a general method for indexing skill mix.

V Attitudes to delegation:

The potential for substitution depends, of course, on the current division of labour and the size of the market; typically, in primary care in the UK, general practices are relatively small ‘firms’ so that ‘substitution’ may actually involve employing additional staff. Empirical examinations of skill mix in the health services have usually been concerned with larger groups of staff and/or staff belonging to one professional group only - for example, nurses on a ward. Thus, while a broad-brush or macro examination might show for example that, in primary care, 20% of a doctor’s time could be substituted by a mix of other fractions of a practice manager or a practice nurse (and perhaps other members of the team), the practicalities of weaving together such a collection of part-time workers into a coherent team may be insurmountable.

Attitudes to delegation are closely associated with substitution - and in both primary and secondary sectors the concept of delegation suggests the notion of ‘delegating down’ thus
frequently depicting delegation from doctor to nurse since, as we have shown, there are a substantial number of activities which are within the scope of the nurses’ workload.

A study focusing on attitudes to delegation in general practice was conducted by the Georgian Research Society in the UK (1991) - this study examined the attitudes of GP’s towards practice nurses and concluded, in general terms, that flexibility lay at the core of delegation with most GP’s agreeing that the nurses’ terms of service should be a matter of negotiation between the individual nurse and general practitioner. Most GP’s were in favour of extended roles for nurses and of patients having direct access to the practice nurse, but there was strong opposition to nurses acting independently to diagnose and treat patients. This study was undertaken prior to the GP Contract legislation and prior to the large increase in the numbers of practice nurses now employed by GP’s, although the statement that ‘the attitudes of GP’s will be fundamental to the way in practice nursing evolves’ remains true.

The York study in 1995 assessed attitudes to delegation ascertained through the analysis of focus group discussions held twice at each practice (20 focus groups in total).

V.1 The Extended Role of the Nurse

One of the main topics of conversation in this area was the extension of nurse (usually practice nurse) roles into such activities as diagnosis of minor, self-limiting illness and the ability to prescribe. Some nurses felt strongly that they did not have the necessary training to undertake these roles, whilst others felt that, with suitable training, they would welcome the opportunity.

Suggested uses of a suitably qualified nurse would be to carry out a triage service in the practice, or in chronic disease management. However,

“My chronic disease patients don’t stand still... they do alter, sometimes imperceptibly with their symptoms. [For example] you can’t say who’s your safe diabetic and who’s your unsafe diabetic, things like that.” GP, Practice 6

On the other hand, some GP’s and practice nurses felt that the line between practice nursing and the role of the “nurse practitioner” was somewhat blurred. Thus, asked to define a nurse practitioner, two practice nurses commented;

“Somebody that has responsibility and can prescribe...extend nurse roles. Although I would say we’re doing quite a bit of it. (Practice 8)

Indeed, practice nurses already ran a type of informal triage service:

“They often say we’ve come to see you before they come to see the doctor, to see if it’s appropriate to come and see the doctor or not” Practice Nurse, Practice 8

Nurses welcomed the advent of nurse prescribing, although some felt the present formulary was too limited.
One perceived barrier to the wider use of nurse practitioners was their relative rarity. Having a formal qualification was seen as potentially problematic to a practice which had invested considerably in its nurses;

".... [if] we get, nurses in the practice to a point where they are accomplishing everything a nurse practitioner would do but then, in order to continue to do that job, or because the definitions or qualification are changing, they've got to go off and do a three year course in order to continue to do the job we have encouraged them to do. GP, Practice 6

Another potential disadvantage in the role of nurse practitioner was their acceptability to patients.

"It's, not that they're [nurses] trained to do simple cases, we see them as well, it's the authority of having dealt with the complicated cases" GP, Practice 7

Some GP's were also wary of the ability of nurses in the role of diagnostician;

"If [I] look at my own ten years in general practice....it's having the confidence ... and that's just something that comes with experience, isn't it? And I think it's a misconception that suddenly a nurse that's not trained as much can suddenly take over ... that experience" GP, Practice 9

Central to most of the discussions on this topic was the issue of responsibility. At present, the GP's felt that the responsibility for the treatment of patients, whether delegated or not, was ultimately theirs. But there was a danger that extending roles in the area of prescribing and diagnosing of minor illness, would increase rather than decrease workload.

"[the nurses'] indemnity at the moment doesn't cover this type of work, so you have actually knock on effects of people taking responsibilities ... staff protecting themselves ... [and] passing things higher up the line, which I can understand." GP, Practice 3

It was unclear whether the opinions of the GP's actually matched those of the nurses. In the context of the discussion groups, nurses may have felt relatively disadvantaged and wary of talking about these issues.

V.2 Perceived Barriers to Delegation

In the majority of their consultations, GP's had acknowledged that there was some element or elements which could be delegated to other members of the PHCT, or to other health related professionals. Other members of the team, such as practice nurses and health visitors, also felt that parts of many of their consultations could be carried out by somebody else, although to a lesser degree. However, this assertion was usually qualified by discussion on the actual practicality of any delegation. Three types of barrier to delegation were raised: the complexity of the consultation process, the willingness of patients to change their consulting behaviour and the perceived desirability of such delegation for the team members themselves.
Complexity of the Consultation Process

... it's very difficult to take, to extract that chunk and give it to somebody else ... here I am, I'm examining the chest or whatever, we're having a conversation about smoking and health promotion at the same time as about what the colour the phlegm is or how long the cough's been going on. It's all part of the same process and to take it out ... and say, well, I can cut that piece off, well, it isn't like that”. (Practice 5)

Many of the GP's shared this view, that patients often came with multiple problems, or within the context of a consultation, mentioned a different problem than that for which they ostensibly came (although in nearly two-thirds of the observed consultations, only one problem was recorded.) This resulted in the opinion that many of the “simple” consultations contained potentially complex problems which may not be aired if the patient was seen by another member of the team.

“And there’s always the problem of the while I’m here, isn’t there? GP

I’ve got this lump sort of thing Health Visitor

Because it is a small minority of patients that are genuinely straightforward and simple” GP
(Practice 7)

Doubts were also expressed about the practical delegation might create, rather than reduce workload.

“You could have done it by the time you’ve explained it to somebody else. So, really, it’s, it’s a poor use of somebody else’s time” Health Visitor, Practice 2

“.....you can be doing their blood pressure anyway. You know, you’re talking, you’re rolling the sleeve up, it’s done and, you know, it takes you twenty seconds whereas if you say make an appointment to see the nurse they're going to have to come back for that. And frequently they have other bits and pieces” GP, Practice 9

Willingness of Patients to Change Consultation Behaviour

Another significant barrier to delegation was the consultation behaviour of patients. Many GP’s felt that they still represented the route into primary care; patients expected, initially at least, to see a doctor - even though many of these choices were, in the opinion of some GP’s, inappropriate. (although significant proportions of patients were in fact prepared to see a nurse if sooner).

Indeed, the fundamental problem with future delegation seemed to be that,

it’s who the patient wants to see....So, who they’re referred to really is, is starting with the patient.” Practice Nurse, Practice 6

Another concern was fragmentation of care, both from the patient’s point of view and from the health professional’s perspective of providing “holistic care”;

"It would be very disjointed, ...patients...they want treatment then...they don't want it Monday, Tuesday, Wednesday, Thursday and Friday their expectations would have to change a lot”
Practice Nurse, Practice 8

...You sort of subdivide and package care into little bits so don’t do the caring, you go in and somebody takes the blood and somebody else does the dressing and somebody else goes in and, and reviews the tablets and no one’s actually caring.....that’s the potential problem”
GP, Practice 6

However, some GP’s did suggest that patients are both willing and able to respond to change;

“So the practice nurses are a new breed and yet in five years patients accept and fairly well know within the practice what you do- refer appropriately to you....patients do learn and change”
GP, Practice 8

“They [will] get to know what they feel comfortable talking to a nurse about as nurses are more and more open to them for a whole range of things. ‘Course, there’s nothing written down that says what you can talk to a nurse about a doctor about either, is there?”
GP, Practice 6

Disadvantage for Professionals

From the GP’s’ point of view, delegation of much of their “simpler work”, such as diagnosis of self-limiting illnesses and regular reviews, of Pill checks for example, would leave them with a workload almost entirely made up of complex, difficult consultations. Reservations were driven by the fear of increased stress and also erosion of what some GP’s saw as their traditional role in “family medicine”.

If you were going to say to me tomorrow that all I was going to see was problems and that they were each going to be half hour appointments, I think that would drive me....despairing, the amount of effort and concentration that you would have to put in to some problems over a long period of time would be quite, quite dreadful. I would hate not to see an occasional quick and easy em....diagnostic problem that came through surgery as well. And I must admit that there are some old friends that I would miss if I didn’t periodically see them and say hello to them. Because I mean, that’s what, that’s what family medicine is to me, in, in a lot of respects.” (Practice 2)

Second, being satisfied with their role seemed important for team members. In making decisions about which activities to delegate, actively choosing to keep activities which assured quality of care for patients and which were personally rewarding was seen as important;

there are a lot of things that could be done in a different way or by someone else that we choose not to do that because of our standards.”
GP, Practice 5

“......first antenatalss ......I like them. I also think that it’s good continuity of caring...”
GP1
'But is liking something a good use of practice time?' GP2

'If it actually means that you are more satisfied with your job, I think it is actually a good use.' GP3 (Practice 1)

Finally, some team members felt that delegating activities such as venipuncture and antenatal examinations would lead to loss of skills. This was seen as a particular problem for GP’s, who were expected to perform these activities in an emergency. Losing experience in the “normal” type of procedures would, they felt, make their performance in the “abnormal” or emergency cases difficult and even dangerous because lack of practice had, in effect, left them de-skilled.

VI QUESTIONS FOR DISCUSSION

The evidence we have researched suggests that - at least in England - less skilled nurses can substitute for more skilled nurses and in certain circumstances nurses can substitute for doctors without loss of quality. However, there are a number of issues which affect the potential efficiency (cost savings) of such a move:

(1) Relative Costs of Consultations in Primary Care

The limited evidence available suggests that nurses have longer consultations than doctors in primary care. Whilst the average consultation rate for GP’s in England is now between 8-9 minutes, the average nurse consultation is around 15 minutes which - even though their salaries are much lower - means that there is little difference in the average cost. (This is in addition to the potential problem of eventual duplicate consultation).

(2) Problems with Introducing Nurse Prescribing

Nurse prescribing has been introduced on a pilot basis but it has already encountered medico-legal problems which make it unlikely that it will spread throughout the UK. Even though the health care system in the UK is far less litigious than in the US, questions have already been raised about the doctors’ liability for the prescriptions written by a nurse in her or his employ.

(3) Ageing Distribution of Nurses in Primary Care

The evidence from Nurses Count was that many of those who were now working as practice nurses had returned to nursing after a gap. Unsurprisingly, this meant that they were older than average, with nearly a quarter 50+ compared to under 15% of all nurses. This obviously raises questions about the viability of training, upgrading etc.
(4) **Cost and Quality of Care**

Although obviously of more general interest, the substitution of one type of staff for another, whilst reducing costs may also reduce quality. This is suggested by the evidence on the study on Skillmix and the Effectiveness of Nursing Care. (see Figure 1).

**Table 1 : Percentage of GP’s working part-time**

<table>
<thead>
<tr>
<th>GMS(1)</th>
<th>1990</th>
<th>1993</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
</tr>
<tr>
<td>Unrestricted principal</td>
<td>2.3</td>
<td>15.7</td>
</tr>
</tbody>
</table>

(1) Figures for the number of part time staff in the GMS sector are not available for 1990, except for unrestricted principals. (MWSAC Report, 1995).

**Table 2 : Outcome of Advertisements for Consultant Appointments: 11/93-10.94**

<table>
<thead>
<tr>
<th>All specialities</th>
<th>Number of Post Advertised</th>
<th>Posts without Applicants (%)</th>
<th>Posts Remaining Unfilled (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>All specialities</td>
<td>2802</td>
<td>229 (12)</td>
<td>471 (25)</td>
</tr>
<tr>
<td>Anaesthetics</td>
<td>492</td>
<td>63 (18.6)</td>
<td>119 (35)</td>
</tr>
<tr>
<td>Paediatrics</td>
<td>185</td>
<td>14 (11.5)</td>
<td>34 (28)</td>
</tr>
<tr>
<td>Obs &amp; Gynae</td>
<td>84</td>
<td>4 (7.5)</td>
<td>12 (22.6)</td>
</tr>
<tr>
<td>Psychiatry</td>
<td>495</td>
<td>74 (22)</td>
<td>108 (33.3)</td>
</tr>
</tbody>
</table>

MWSAC Report, 1995
Figure 1: Care Quality and Outcomes by Proportion of Staff at Grade D and Above

- Proportion of staff grade D and above
- ▲ Proportion with Good outcomes
- ☐ Overall Quality
References:


ditto (1989).


"SUBSTITUTION" FOR AND AMONG PHYSICIANS: A CANADIAN VIEW"


In the present atmosphere of health reform, physician substitution is a topic of high interest for almost everyone but physicians. My approach to this subject comes from over twenty-five years of rural practice, and ten years in the administration of a small system of about 15 physicians and a number of nurses working in rural, isolated, communities of need. We have "nurse practitioners" who focus on women's health issues working in all of our clinics, and two employed in an isolated community with no physician on site. We also have had extensive experience in providing physicians with additional enhanced skills training in order to cover the various medical needs of the isolated communities they serve. Such professional development, for both physicians and nurses, is so much second nature for us, that in fact I tend to think of "physician development", and "nurse development", rather than "physician substitution". What I mean by that is that our work and locations are such that it is quite natural for us to identify a specific need, and train someone to meet that need or address a particular concern, and we do not think of the process as one of "substituting" for someone who may have a greater or advanced training.

It is evident that my approach to this topic is experiential, and not particularly academic. It has been shaped by practice, not within the research/teaching environment, though it has certainly been shaped by recent and developing concerns of professional groups for their professional territory and its preservation.

The pressures driving our experience have been pressures to deliver service in isolated communities, cope with recruitment, and formal qualification requirements.

It is interesting that at the very time when we are deeply concerned about the cost of health care, and when there are various practitioners, dedicated to their communities and interested in developing additional skills, we have also run into pressures that would add to cost, and reduce such commitment.

**The Climate**

In Canada the impetus for the development of "Physician Extender" came in the 1960's due to a perceived physician shortage, and the need to contain the costs of health care. (1)

The physician shortage has not occurred in Canada to the extent that was predicted. The need to contain costs, though, has increased in priority and scope far beyond the predictions of the 1960's.
In addition, whereas twenty years ago general practitioners/family physicians/nurses had scope to provide a wide range of services, some of them advanced (e.g. surgery, anaesthesia), today some rural communities not only don't have those advanced services, but are hard pressed to find a physician at all. Such conditions exist too in the inner city, and in special areas of need. We will be graduating fewer physicians in Canada, and hospitals, the base for professional activity, are being reduced in size or removed altogether.

Nurse practitioners appear to be playing a key role in several provinces' attempts to reform the health care system. Ontario, for instance, is considering major changes to accommodate them: Ministry of Health documents call for decreases in the number of family physicians and changes in the way they are paid in order to make room for nurse practitioners. (2)

Furthermore it has come as something of a revelation, that office-based primary care physicians are not the be all and end all of care any longer, and that there are "antecedents" to health that are far more critical to the development of healthy communities than the presence of physicians, nurses and hospitals might suggest.

At the same time it is still true that rural communities, especially the very isolated ones, lack a sense of security unless there is a physician or hospital present. A recent Australian study, carried out by means of interviews in rural and isolated communities, determined that rural communities required, for their sense of health care well-being the presence of - first priority - a physician, 2nd priority - hospital, and 3rd priority - pharmacy. (3)

**Evidence on Substitution for Physicians**

I want to discuss first of all our own experience with nurse practitioners, and then briefly the evidence for quality, effectiveness, range of service, extent of use of nurse practitioners and physician assistants in Canada.

Our own experience with nurse practitioners began some 15 years ago, when we were asked to continue to provide medical services to an isolated community of about 1000 First Nations people on British Columbia's north west coast. This community had been served by a family physician/general practitioner for a number of years. We attempted to continue the service with a family physician, but discovered that this was really not a satisfying practice for a modern trained doctor. There were few lab and diagnostic supports available, the job required being on call 24 hours a day, 7 days a week, and the members of the community had personal family physicians in a much larger town about 30 minutes distant (by air), and viewed the resident family physician as simply being a support until they could see their "regular" family doctor in the big town. In discussions with the community and the province it was determined that it would be more acceptable to replace the family physician with two nurse-practitioners, who, along with another resident public health nurse, could maintain a program of twenty-four hours on call, thus allowing much better scope for family life and professional development, and less of a sense of isolation for the nurses.

This program has been in place for some 15 years, and we have found that with weekly
physician visits to the community the coverage is good and the clinical skills provided (much through our own training of these nurses) have been adequate. The practice is safe. Problems have arisen admittedly, but these are problems that in our judgement would also likely have arisen even had a physician been resident in the community.

Nurse-Practitioners and Physician Assistants

Canada has a number of nurse practitioners - otherwise known as "outpost nurses" - working in the rural and isolated communities across northern Canada and the Arctic. These nurses have provided superb service over the years and with visiting physician support have demonstrated that where primary care is concerned they can do an excellent job. In addition there are nurse practitioners who work in a variety of specialized jobs in physicians' offices, in diabetic day care clinics, orthopaedic clinics, palliative care and cancer clinics, providing education, preventative advice, and home care skills.

We have very little experience with physician assistants. This is largely an American phenomenon, although the Canadian military has had experience with physician assistants in the military context for some time, and there is evidence that the military is widely satisfied with the job being done, though I could not locate studies that provide objective assessment of their role.

Quality of Care

I define quality of care as doing the job accurately, to the satisfaction of patients. Is it really necessary to go into the issues of quality of care provided by nurse practitioners at length? Numerous studies have shown that nurse practitioners can be as effective as primary care physicians and specialists in certain defined areas of practice. In 1974 the Burlington randomized trial of the nurse practitioner appeared in The New England Journal of Medicine. It confirmed that the quality of care, satisfaction of patients, and the satisfaction of professional personnel were equal between nurse practitioners and family physicians.(4) Furthermore this new method of primary care was thought to be cost-effective from society's point of view, but unfortunately not so much from the doctor's point of view, since there were restrictions on reimbursement for the nurse practitioner's services in those days. (5)

Effectiveness

The next question is whether or not the physician substitute can carry out the given job in a timely and efficient way. A study carried out within our own service in Bella Coola of nurse practitioner effectiveness in carrying out pap smears showed clearly that in this well-defined area of primary care, a nurse practitioner can do effective and high quality, dependable work.(6) Furthermore the nurse practitioner opened up a range of service to women in a community served at times only by male physicians.

Some have estimated that 10% of all medical costs, and 15% of ambulatory care costs, could be saved by utilizing a nurse practitioner/physician assistant.(7)
These are estimates only. Brown and Grimes (8) point out in their meta-analysis of nurse-practitioners and nurse midwives in primary care that "the question of cost effectiveness of nurse practitioner/nurse manager care could not be assessed by this meta-analysis. Although many authors have described their studies as addressing costs or cost effectiveness, few actually provided data that supported such conclusions."

They go on to say that

"the results of this meta-analysis represent the extant research on NP and NM care, compared with physician care. Trends in these data are more important than any individual statistical finding, and suggest that NP/NM care is equivalent to, or sometimes better than, physician care. The data are applicable to patient situations for which these advanced practice nurses were prepared, as in health promotion and assessment as well as treatment of minor acute and stable chronic conditions. It is to these types of patient situations that the findings can be generalized. The lack of methodological rigour and logical formulation of many of the primary studies however, still leaves many unanswered questions about NP/NM practice. These questions must be answered so that nurses are not in the position of arguing their value on moral principle, right to practice, or naked power". (8)

The point that Brown and Grimes make is critical. There appears little doubt, that in the Canadian context at least, nurse practitioners can be as effective as family physicians in providing a limited range of primary care services, but the question of cost-effectiveness remains open.

**Range of Service**

Is there more than one narrow job to do, or can the nurse practitioner/physician assistant carry out a sufficient range of services in the clinical setting to make their work worthwhile? All of the Canadian studies I have seen have been based on measuring nurse practitioner work in a very limited area of primary care with focused responsibilities, and utilizing a limited range of skills. The range of nurse practitioner and physician assistant duties is still being defined and the likelihood is that the range will continue to open up for nurse practitioners as a whole, but be limited for individuals depending on where they work.

Lomas and Stoddart have estimated that in 1980, 20% - 32% of general practitioners in Ontario could be replaced by nurse practitioners. (9) In fact, the work of the nurse practitioner or P.A. is really only limited by the cultural context. At a recent conference of rural medical personnel in South Africa Dr. Joe Lucci, the medical director of a rural hospital in Congo Zaire, in which the medical staff had either fled or been killed in the midst of the civil war, presented at a plenary at the World Congress of Rural Family Physicians. He was asked whether he thought there was a role for nurse practitioners in primary care. Dr. Lucci laughed at the question, which had come from a North American, and indicated that he is profoundly thankful for the nurse practitioners in his hospital, because they carry out the caesarean sections that are required at night so that he is spared having to get up in the middle of the
night, and was afforded some much needed sleep. This is a far cry from the scope of practice of Canadian NP's.

In Canada, the range of services provided by nurse practitioners is relatively limited, but at present in broadest scope encompasses a wide range of primary care from prenatal care and some obstetrics, to postnatal care, paediatrics and through the life cycle. This range of service is most often offered in outpost and isolated communities in Canada, and is limited to services that are not invasive. There is considerable scope for the development of such services, if we were to decide to open up to the possibility.

**Substitution Among Physicians**

Substitution of work among physicians, particularly among primary care physicians, is an area that is in constant change. Family physicians, again usually in rural and isolated areas, in order to serve their communities more effectively, have taken on a wide range of additional skills, but it is becoming harder to find the training, and even more difficult to apply the skills once attained.

The Canadian Medical Association Journal recently published work indicating that a major portion of the anaesthesia in the provinces of Alberta and British Columbia, and some considerable surgery as well, were provided by GP anaesthetists and GP surgeons. (10) Getting the skills to do general practice surgery these days is an extremely difficult challenge to overcome. In recent years the University of British Columbia has established a 3rd year residency training program for physicians already located in rural communities, providing funding for them to return with a resident's pay, to spend a year developing surgical and other skills. Despite the lack of evidence that GP surgeons have ever had major problems with working in the abdomen, the Society of General Surgeons has indicated its belief that no GP surgeon should be allowed into the abdomen. This means that GP surgeons either find the training elsewhere, or enter the human abdomen at their peril. General practice surgery is therefore officially limited to the excision of lumps and bumps, and perhaps some plastic surgery and minor orthopaedic procedures, although GP surgeons in fact offer a much more inclusive service than this.

Though the situation is not quite so severe with anaesthesia, it has recently become necessary to take a full year of anaesthesia in order to qualify to do general practice anaesthesia. Not long ago six months was considered to be the appropriate length of training, and there was no evidence to indicate that an additional six months would be of major benefit.

Again, without evidence, but due to the pressure of the speciality organizations, people living in rural and isolated communities have been forced to make long trips in order to receive their surgery at the hands of specialists even for relatively minor procedures. This has resulted in the dislocation of family, jobs, economies.
Gradually, family physicians have taken on more and more of the work of the paediatrician, except in those cases where highly specialized knowledge and procedures are required - such as in the management of neonatal intensive care programs, the care of exceptionally ill children, or children with special conditions.

In our own service, as isolated as the communities are, we have found the use of the diagnostic skills associated with ultrasound to have been particularly valuable, especially in those cases where we want to carry on with some effective level of obstetrics. I am not aware of FP's doing this widely in Canada. Again, the speciality program suggests an elaborate course of training in ultrasound. We have been managing safely with careful physicians having been given one month of ultrasound training, focusing on the particular areas of expertise and organ systems of which they require knowledge. Having ultrasound available as a diagnostic tool in an isolated community and not having to go to the huge expense of providing lengthy training for physicians has been a great advantage.

In addition in our communities our physicians do basic x-rays when they are on call, in order to prevent having to call in an x-ray technician at added cost to the hospital. In this case it is substitution of a physician's work for that of an x-ray tech.

Increasingly, family physicians have also been developing advanced skills in emergency medicine, and now family physicians with a speciality year of training in emergency medicine are being sought as emergency room physicians.

At one time any consultant physician could take on the job of a family physician/general practitioner, on the basis of the fact that all physicians had a common rotating internship experience. The substitution of consultant for a family physician is no longer acceptable either, and with the possible exception of the very much advanced and narrowed specialists, one wonders whether this is a necessary restriction. Again in our service we have made use of a very competent internist-cardiologist who originally practised in an urban setting, but has for a period of several years provided service with us as a family physician. As long as his clinical work is well sorted out, and the receptionist avoids booking paediatric and obstetrical cases with him, his work is excellent.

**Impediments to Substitution for Physicians in the Provision of Clinical Care**

In Canada, there are a number of road blocks to substituting for physicians, that involve a lack of clear understanding and definition of what we need in NP/PA's. Problems with training and setting standards, legal, political, and practical obstacles exist.

The major impediment, however, is that those who would substitute have not demonstrated a true gap in service, except in rural and isolated areas. Assuming we accept that the work of a nurse practitioner can be of equal quality to that of a family physician, in certain well defined areas, and that the effectiveness and range of service can be acceptable, it is still true that, in the urban setting at least, no clear need for an additional level of service or physician substitution has been demonstrated, nor has cost effectiveness been well demonstrated. If it is
true that we have too many physicians in the urban communities in Canada, it is also true that the addition of more primary care workers in that setting would simply overload the system even more.

It is argued convincingly in some quarters that there is impetus for the development of new nursing roles, but that taking on tasks discarded by doctors is not the way for professional nursing to develop. Furthermore, it is clear that the nurse practitioner role lacks operational definition and an adequate research base. (11)

Thus a further obstacle is that we have not been able to be completely clear about the type of physician replacement or substitution that we need. Is this to be a nurse practitioner with a total of four years of nursing training, and two years of advanced clinical training and a master’s degree after two years? Is this to be a physician assistant with an undergraduate degree and an additional year of training? Are these trainees truly the level of practitioner we seek, or would it be sufficient to provide the diploma nurse (two years of training) with one additional year of training and could we expect a sufficient level of care from such an individual? (12) What is the training level we seek then? What are the standards to be? Are they to be set by other professional groups, such as physicians? The need for a clear description of the advanced practitioner nurse and accepted standards of education and training is clear. (13)

Authors such as Carolyn Buppert argue that nurse practitioners require master's degrees, continuing education requirements that parallel the requirements for family physicians, at least one pharmacology course, and that nursing graduate schools should add physicians to their faculty to deal with the illness management portion of the program, as well as that nursing schools should offer a clinical doctorate in primary care. She also argues that nurse practitioners should not do their own research on cost and outcomes but, recognizing the criticisms of the research that we mentioned earlier in this paper, require tightly designed studies so as to withstand the criticisms of poor controls, non random samples and too small sample sets. (14)

"Canada is in desperate need of a clear description of advanced practice nursing, illuminated by clinical examples which demonstrate the many variations on the theme." There is a lack of universally accepted standards of education and practice for advanced practice nurses and a need to legitimize and recognize advanced practice roles. (15)

The United States has come to develop the physician assistant/nurse practitioner role through business pressures. That is, it is felt that people with these particular skills are a more cost-effective way of providing primary care than physicians. However, Canada, with a single payer system, has a more difficult time applying business pressures in this situation, and without a physician shortage or a demonstrated gap in service, it is hard to make the case for the need for nurse practitioner/physician assistants.

Related to the above barriers is the legal one. There is need for legislation to define and/or enlarge the scope of practice of nurse practitioners and physician assistants. At the moment
the legislation is confusing, and varies from province to province, as it does from state to state in the United States. In some jurisdictions the nurse practitioner/physician assistant is limited to working under the supervision of a physician. In some areas there can be some level of off-site but supervised practice, yet in others nurse practitioners have the legal right to practice on their own, and in yet others such individuals may actually prescribe. Safriet points out that "licensure, because of its all or nothing quality is the most restrictive type of regulation possible, although its effectiveness has yet to be demonstrated conclusively. Many licensure and statutory scope of practice laws governing non physician providers include unwarranted provisions that erect unnecessary barriers to the full utilization of these demonstrably competent professionals" (16)

There are of course cultural barriers as well. Physicians have had great success in medicalizing a great deal of health care, and this has become a very powerful cultural force in North American society. For a variety of reasons - the power of the scientific method, the linking of medicine with science, the clear preoccupation with health in modern North American society, and the wealth and power of physicians - these have all gathered into a powerful force that has made it difficult for various types of health care providers to achieve the freedom to apply their skills. At the same time it is clear that any new provider on the scene must in today's context provide proof of their value. Safriet again makes the point that "by making physicians the norm, and identifying other providers only as non-physicians, or less than physicians, we render culturally invisible the fine contributions that they have been making all along." (17)

A further significant barrier is the isolation of physicians from other health care professionals - leading to an ignorance of their training, experience, and education and role competency. A lack of interdisciplinary training and practice have created great professional barriers. Thus an opportunity to train together to appreciate each others' roles and capabilities would go some distance to breaking down the isolation between various health professional groups.

In the Canadian context another obstacle is the question of payment. At present physicians and a limited number of other health professionals are paid through the various provincial Medical Services Plans. Even if it were possible for nurse practitioners to work independently without physician supervision, there would in many cases be problems of billing and payment, and under the present Canadian system nurses would not have the liberty to be paid except through direct payment by the client, or through another insurance program.

The political barriers are perhaps the greatest broad obstacle to overcome. There is no major public pressure within the single payer system to replace physicians. This is not surprising if one assumes that the Australian study is correct and that people in rural and isolated communities only feel that they are being properly cared for if they have a physician, a hospital, and a pharmacy, in that order. In addition to the lack of public pressure, on the other hand there is physician resistance to the development of physician replacement. Nor do those who are seeking a role as physician replacements have the funds to make themselves heard. There is no business pressure to drive physician replacement, and there is no major public political pressure either.
**A Practical Barrier**

Speaking as a rural physician perhaps the most telling obstacle of all is the fact that nurse-practitioners, while helpful in the office and in isolated communities on their own, cannot make the job of the rural practitioner much easier when it comes to taking their place on call. The most onerous long-term, wearing aspect of the provision of medical services in a rural and isolated community is the issue of taking call, and unless nurse practitioners have the scope to take call on their own, make their own judgements, decide on the transfer of patients, or admission to hospital, there will be little true incentive on the part of physicians for welcoming nurse practitioners into a full partnership role in the provision of care in rural and isolated communities.

**Moral Impediments**

Here I have no evidence to offer as such. I am simply convinced that small communities and areas of need deserve, and are entitled to, first rate primary care. The communities pay for primary care. They pay their share for medical school training, and should expect to have physician services without extra costs (The Community Needs Program at UBC requests that communities pay for residency training in return for the commitment from a physician to work in that community. I see this as an unnecessary and unfair burden on rural communities). In other words if we were to say "we can't get doctors to go there. Let's replace them with nurses" then this amounts to a put down of rural communities and an unfair use of their tax dollars.

There is a strong moral argument against substitution, if it means that the medical profession is able to duck its responsibility to supply physicians to communities of need. It is unacceptable for the medical profession to wash its hands of this responsibility, and to say "we can't find anyone to work there. A nurse practitioner would do well, but only there, and not in an urban area."

On the other hand if physicians are saying we have no further interest in serving communities of need, then substitution, and in fact replacement, is a valid recourse. This could become as radical as cutting places in medical schools even further, and committing the resources gained thereby to giving nurses a chance to train as first line primary care nurses to take on the care of people in areas of special need.

**Conclusion**

Canada has had excellent experience in the substitution of nurse practitioners for physicians, particularly in the rural and isolated communities of Canada. Nurse practitioners have also found a limited role in the Canadian health care system in the provision of education, preventative services, and home care, and there is scope for wider involvement of this sort, although there is no evidence to suggest that there are actual gaps in the system that would make the provision of such service an urgent priority.
While there are numerous studies demonstrating that nurses can provide high quality service, more effective studies need to be carried out to fully demonstrate cost-effectiveness. To date the studies available indicate good quality and effectiveness, but in a relatively narrow range of services.

If physicians fail to fulfil a needed role in the provision of medical services to areas of need, capable nurses with appropriate training could very well meet the need, and should be given the opportunity to do so, if physicians abdicate this role.

The substitution among physicians for the provision of certain speciality skills again focuses on rural and isolated communities in Canada, and these physicians provide a much needed service to rural citizens, who otherwise would have to be displaced to great distances for these services. Such displacement already happens in some unavoidable circumstances. Unnecessary obstacles are raised to the provision of advanced service by physicians working in rural and underserved areas.

The obstacles for the development of greater nurse practitioner activity in Canada have to do with requirements for a more precise role definition, clearer requirements and opportunities for training, territorial terms on the part of physicians, cultural problems relating to the nurse-practitioner's relationship within the nursing profession and in relation to physicians, some of which might be overcome with some overlapping training between nurses and physicians, and also have to do with issues that are political, and moral.

With clear demonstration of gaps in service, and persistent demand on the part of the Canadian population for primary care services that will truly meet the population's needs wherever they happen to be located in the country, active pressures may come to bear that would open up greater opportunities for nurse practitioners. There certainly is great scope for nurse practitioners to apply basic primary care skills in both urban and rural communities and there is some possibility that there could be considerable cost saving were there to be wider application of these skills in the Canadian health care system generally.

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General Discussion after Morning Panel

The panel chair opened with brief questions asking what should be done and how to do it in order to tackle the barriers, given that the public interest could be defined in terms of the cost-effectiveness of services and public safety. Also in question were issues regarding the distribution of dollars (allocation of resources) and patient choice. He then introduced David Sudwell (new chair of COGME), who spoke briefly about the problems in regulating training in the US. The challenge is that the government is not inclined to regulate, but that it will give incentives to decrease postgraduate training (e.g. to hospitals to NOT train doctors). However, there is now a bill in the House to repeal that incentive. To the speaker, the problem of the US system is the extent to which American society is anti-government and anti-regulatory, though he noted that in the US, if you can argue that a regulation will save money, it may be more likely to be implemented.

One of the conference participants opened with a discussion of the meaning of substitution, saying that we're not really talking about substitution because that implies a given set of services that comprise medical care and that these are not specific only to medicine. Nurses argue that medicine and nursing do not overlap in practice and that substitution suggests idea of replaceability. Moreover, these are not completely overlapping groups, so we can not determine adequate or oversupply in the numbers of people in these disciplines. She would suggest that changes in the organisation of care are driving a lot of workforce issues. The organisation of care relates to how the care is given, to the content of care, to the cost-effectiveness of care, and to what consumers want. The organisation of care appears to be in flux in all three of the countries here and is driving workforce change. Studies have shown that the organisation of care is more directly linked to patient outcomes than is staffing. The Rand Corporation did a review which showed that the context of care determines what providers do, whether the state regulated them or not. In the past thirty years, nursing education has changed dramatically, so the move for nurse practitioners to MA preparation is just a part of the wholesale upscaling of nursing education. This is not bad. A panellist responded that we know the least about the context of practice and what practitioners want to do. Another panellist pointed out that they were talking about substitution in their paper and this occurs in each context of care. He also maintained that in their research, they did compare organisational context of care with regard to nursing.

A conference participant argued that nurses are being substituted by others with less education because nurses have priced themselves out of the market. Doctors were also being priced out of the market. It takes three nurse practitioners to replace one physician clinician, which is not cost-effective. Who should pay for this, the public, the state, or the physicians? In addition, it was unfair that liability costs are high for obstetricians, but low for nurse practitioners and midwives.

A panellist responded that if nurse practitioners have a role to play in primary care then they take on the liability for that role and they do carry liability insurance. This is part of the burden of independent practice for all practitioners, and we need a new system of liability. He went on to mention that the question of who pays goes to the cost-effectiveness of NP's.
Another panellist noted that the US is moving toward having NP's bill separately. In the US, there is a marketplace of practitioners where qualifications are improving and there is a variety of careers.

The next speaker remarked that what we have to do is look at the health needs of the population and create a supply of professionals to meet those needs. What may look like substitution is in fact impediments to professions to practice fully because of regulation. In Saskatchewan they are trying to remove barriers so that all professions can play a full role. The CPSS has taken a lead role in identifying barriers to full practice. Ontario is not the only province in which nurses can practice independently. Actually, nurses are autonomous practitioners and payment issues prevent them from independent practice. There is not an impediment to full practice in other provinces because of regulation but because of payment. Every professional carries responsibility for his/her actions and nurses carry professional liability insurance. This liability insurance is cheaper than that for physicians because in fact nurses have fewer law suits brought against them.

Another participant questioned whether substitution was occurring in the area of mental health, pointing out that the issue has not yet been studied, possibly because it is difficult to work out roles and role definitions for mental health practitioners. The panelist responded that his research team is trying to work out the relationships with psychologists etc. for primary care definition. He pointed out that, in terms of substitution, once in the mental health track, the cross-over into the medical-surgical track is unlikely. The philosophies are different, too. Indeed, all health workforce groups have philosophies which complicate the Venn diagram.

The next speaker quoted Trotsky to the effect that "You may not be interested in war, but war is interested in you." He reiterated the need to re-insert the aspirations of nursing into yesterday's accounting equation. He then went on to argue that what is wrong with upgrading the level of nursing education is nothing, providing they don't get more money for having higher education. He feels that this is not what nurses have in mind. The question to ask is, who's income is going to decline if nurses are given more money? If no-one's, where are you going to get the new money? There is a direct conflict between the professional expectations of nurses and our hope to keep costs down in the Canadian health system. The speaker went on to discuss the expansion of NP's in the US, remarking that to the extent that their practice is funded, the funding will come from government or from the private market, which is inequitable. With regard to upgrading education, he recognises that his view is cynical and negative, but he is on side with Peter Newbery, when he presented two examples of doctors and nurses where upgrading their education led to decreased care. Lastly, he remarked that while nurses may not want to substitute for doctors, that may be what we need them to do. Such substitution may not be cost-effective in acute care but we may want it elsewhere as the physician supply decreases.

A panellist stated that substitution is consumer-driven. He is not convinced that there aren't areas of unmet need. Consumers seem to want NP care - they recognise a need that we've lamented not filling. Nurse practitioners' training programs are the most rapidly expanding programs in the US, possibly because if they cannot get positions as nurse
practitioners they can always work as nurses. A participant noted that there is a lot of consumer driven development in health care, and if left up to physicians, we wouldn't see the growth of things like chiropractic practice. There is a problem of projections and the marketplace - in New York, the marketplace is competitive and new physician graduates are having difficulty finding work, so the supply will begin to decrease. NP's are different - they are already working as nurses and may be less responsive to marketplace factors. With regard to collaborative practice, there are benefits for patients but as competition increases, physicians may be less willing to support it. The panellist responded by noting that in his research it was clear that with distribution, except for nurse anaesthetists, if there are lots of physicians, you also get lots of everyone else.

Another participant commented with regard to substitution and collaboration that the fact that the patient had not been mentioned was remarkable. He felt that the speakers had been presenting a competitive model in which physician work was being divided up and it was not clear who would do it all for patients. He wanted to point out that the US, UK and Canada are three different countries with different histories, making it difficult to generalise. He felt that we had not spent enough time looking at collaboration for the vast majority of care delivered outside hospitals, and we are losing the concept of the effectiveness of multi-disciplinary care. He closed by asking how much a result of the fragmentation of primary care is the rapid increase of NP's in the US?

A speaker stated that staffing was more a function of physician attitude than of management. He thought it interesting that there were studies on NP's examining cost-effectiveness but no similar studies of physicians. He noted that the health economic models for developing countries tended to provide examples of substitution - e.g. C-sections performed by medically trained workers in Mozambique. PA models are well-established elsewhere and cost-effectiveness studies appear to support their work. He noted that there are major barriers to providing physician service delivery in rural areas, one being that when you train anyone in an urban centre and then put them in a rural area, they are unlikely to stay. Those raised in rural areas are more likely to stay. Another participant commented that from the consumer perspective, it was very clear that there is demand for higher technology, low risk services, even in Canada, and demand is also growing for non high-technology services, e.g. acupuncture, chiropractic. If he had experienced disappointment yesterday, it was through the implication that all demand was supplier-induced, and this material doesn’t support that view. The next speaker made the point that nurses may not want to collaborate with doctors. He offered as a planning tool the notion of developing three patient scenarios and asking which practitioner would be the most appropriate manager, so that you can try to get beyond rhetoric and focus on needs for patients and then look at staffing. One participant remarked that nursing education up-scaling, or credentialling, has implications for labour mobility in Canada. She went on to point out that if we have an over-supply of physicians, why train someone else to do their work? Already-trained nurses can do some of this work. If you are going to train for substitution, then you must give the practitioner the opportunity to practice.

The panellists then gave their final views. Peter Newbery agreed with the comments about collaboration and patient choice. He remarked on a nurse from the UK who commented...
that nurses now want to give up nursing to do the work of physicians, and asked why that should be so. With regard to the issue of consumer demand, it is sexy nowadays to refer to it, but he's not sure that we're not talking about salesmanship. If we define practitioner choice as consumer demand, then the demand is bottomless. It's defined as such on behalf of drug companies already. Roy Carr-Hill had some views about the rhetoric about the continuity of care provided in primary care practices. In his experience, patients don't care about continuity if they can see someone else sooner. Nurses may provide better social care. He added that he feels we have lots to learn from developing countries about primary care, and that where patient choice is concerned, we need evidence. Buzz Cooper responded that we need to understand context of care, as the context of care will guide policy. He added that insurance companies want to know how it works, what it costs and how happy are the patients.
Closing Plenary

Comments on the Major Themes

Dr. Phil Lee
Perspectives on Overservicing, Substitution, and Primary Care Reform in Canada, the United Kingdom, and the United States

Dr. Phil Lee
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Closing Speaker to Second Trilateral Physician Workforce Conference
Vancouver, Canada
November 15-16, 1997
To summarize nine papers and one-and-a-half days of discussion dealing with overservicing, primary care reform, and substitution is a formidable, indeed an impossible, task. I will not attempt it, but would rather add my comments on each of the major themes.

The meeting began with a brilliant overview by Professor Robert Evans. He set the context for the subsequent presentations and discussion, pointing out the persistence of some issues; the often conflicting objectives of policies; the importance of ideology, the role (or lack of it) of evidence based on research or observation in shaping policy, changing patterns of organization and incentives, which often characterizes the United States; and, the importance of "squeeze," which had tended to be more important in Canada and the United Kingdom because of the limits of public spending.

Let me turn to the three themes. First, overservicing.

Overservicing can't be discussed without a discussion of underservicing. We spent a lot more time talking about overservicing than we did about underservicing. Dr. Noralou Roos pointed out that we shouldn't confuse overservicing with services where high use is related to need. Underservicing in the United States is a serious problem. There is ample evidence in the United States with respect to the failure to diagnose and under treatment of depression, particularly among primary care practitioners, as well as the under treatment of a number of chronic illnesses, including hypertension. Half of the women over 65, for example, are not even treated for hypertension. Of the hypertensives in the United States, only about a quarter are adequately treated and have their blood pressure adequately controlled. Same thing is true with diabetes mellitus. The NIH carried out a large scale study of Type 1 diabetics and found that effective control of blood sugar dramatically reduced complications. When one looks at the implementation of the recommendations that grew out of this ten-year research project, we find that only a very small percentage of physicians actually are providing diabetics with the kind of care that controls their blood sugar and reduces complications. There are many other examples of underservice, including the lower rates of health services for the poor and uninsured. There is also abundant evidence of the over-provision of health services. Some have suggested that one third of medical care services are inappropriate or unnecessary.

What conclusions do I draw from this look at overservice and underservice? First, and this point was made by a number of people in the early sessions, is the importance of evidence-based medicine. The evidence-based medicine must keep pace with the rapidly changing technologies that are available, and that can be put into practice. It's not enough just to have evidence-based medicine - it must be put into practice. The solo practice office is hardly a suitable or appropriate structure to permit the rapid and continuous evolution of the application of evidence-based medicine. The reports from Group Health in Puget Sound, which Dr. Grumbach mentioned, and which have been illustrated in a number of articles, including one by Bob Thompson in the Milbank Quarterly, illustrate how an organised, multi-
speciality group practice, that includes family practitioners, can be used effectively in partnership with public health, with the media, with academic health sciences, and with the community, to promote and protect the health of the community, while providing very good medical care to the individual. To the extent that it's possible, I think that non-profit, multi-specialty group practices provide the best opportunity to bring the best evidence-based practice to bear on their patient populations.

The development and application of evidence-based medicine will depend on a commitment by our research institutions and the funders of research to give a much higher priority to evidence-based medicine and research on evidence-based medicine. It also requires that the incentives for physicians and other clinicians be changed. The fee-for-service payment system, with its disproportionate rewards for procedure-based services both in Canada and the US, is hardly the appropriate means for the most appropriate application of evidence-based medicine. Capitation payments are best, I believe, for populations, and again my personal view is that salaries are the preferred arrangement in order to facilitate the best practices. It is better to do this than to use fee-for-service and squeeze.

To do it right means that we must learn from practice. The randomized controlled clinical trial, which has been held up as the gold standard, is in fact only one of the ways to develop the knowledge base for evidence-based medicine. Experience from practice is certainly another one of these. And again, we shouldn't denigrate that. We've had some legendary physicians particularly in the UK, whose practice led to really substantial advances in knowledge. We've been talking about primary care I think since John Fry coined the term in 1960's. I don't think of primary care as a discipline, and I don't think there are primary care practitioners per se who have a monopoly on primary care. Primary care is a series of services or a set of functions. It is sometimes described as a level of care, the foundation of medical care. If you talk about health care, then, as it was pointed out, primary care is far broader than medical care, and should encompass the social services as well as medical and public health services. The sites for primary care can be many. It may be at home, it may be in the community, it may be in the office or the group practice or the community health centre. It may be in the hospital, particularly in the outpatient clinic. It can also be in the nursing home.

In addition, primary care requires a team approach. In the last discussion the importance of collaboration was described. I think that the future of both medicine and public health make it absolutely essential that these two fields collaborate. There's a major initiative underway in the US now, with a project at the New York Academy of Medicine, which will be producing a book, probably by December, reporting on over 400 examples of collaboration between medicine and public health in the United States. The benefits are both to the health of the population and improvements to the care of the individual patient served. This collaborative approach also requires a breadth in primary care, and not a monopoly of one particular medical speciality.

In collaborating with medicine, it is the job of public health to first of all identify the risks to health and to eliminate, to the extent that it's possible through public health interventions, those risks. It is also to inform people about their risks, to direct them or funnel
them or assist them in reaching the appropriate levels of care, and to overcome logistical barriers (which are substantial), and cultural barriers, which in the United States, and particularly in California, Texas, Florida and New York, are increasingly important in terms of the delivery of these services. Finally, public health must provide outreach services, particularly to those that are traditionally underserved.

We didn't discuss a central issue, namely the function of the physician. The primary function of the physician, to my mind, is to diagnose the patient who presents with undifferentiated signs and symptoms. Once that's done, then an array of other clinicians can participate in the care of the patient. It may be the cardiac surgeon, it may be a nurse practitioner, it may be a pharmacist, it may be a physician's assistant, it may be a counsellor of one sort or another. But with current patterns of practice that essential function may be performed by a naturopath or a chiropractor or an acupuncturist. The patient and the public are not well served under those circumstances.

Substitution also requires a team approach if it is to be most effective. To do this, again more research is needed, and the importance of cost-effectiveness, which has been repeatedly emphasised, must be stressed. Quality, cost-effectiveness, and appropriateness are the critical components. The problem we face in the United States is substantially different from the problems faced in Great Britain and in Canada. In my view, as I listened to Dr. Cooper's paper, I thought that we've gone back to the pre-Flexner era. In 1910, 87 years ago, Abraham Flexner reported on medical education in the United States and Canada. This report was a brilliant attack, particularly on proprietary medical schools run by individual physicians, or in some cases by small faculties of physicians, generating income for those physicians and not serving in the public interest. He advocated what was then called the Johns Hopkins Model of Medical Education, linking research and clinical services. And forty years later, every proprietary school in the United States was closed, and most of the medical schools were university-based institutions. Mr. Flexner's attack was part of a much broader attack, and the AMA played a very significant and important role in that. Many were called "irregular" practitioners and many of them weren't "irregular" but had gone to a medical school of sorts, but they were ignorant, ill trained, incompetent, and unscrupulous, and the status of the medical profession was dismal. In the late 19th century the medical profession tried to attract women into medicine in the hopes that they would upgrade the status of medicine. After Flexner, science took the place of women and the enrolment of women in medical school dropped dramatically. Well, here we are now in 1997 with an appalling picture in the United States, thanks, I believe, to our market mentality and the notion that medical care is a market good and not a public good. Professor Evans was correct in his opening remarks in saying that the issues persist. Who would have thought that the U.S. would have returned to a pre-Flexner set of circumstances. I believe it's largely market driven. It's driven by the way in which we set policy.

There were some subjects we didn't discuss as fully as I thought we might, and cost was one of those. It came up repeatedly, but costs drive policy, in the United Kingdom, in Canada and the US, and this has been called the fiscal imperative. I think we need to focus and perhaps give more attention to just how powerful costs are in driving policy.
Another subject is the decline of physician dominance, or physician sovereignty in Paul Starr's words, and the relationship of the medical profession to the state. Both in Canada and in Great Britain, the state is much stronger than in the United States. We do not have a strong central government. However, the medical profession has learned to its great dismay about the power of the private sector, and particularly large employers, who are now ramming managed care down the throats of the medical profession. The relative balance of power has shifted dramatically in the last 20 years in this regard from the providers of care to the purchasers of care.

We heard about the consumer perspective. Again I think we could hear more about that in the future, particularly consumer perspectives related to values. It may be a bottomless pit, but it's also an area where I think more participation of consumers would be helpful. Perhaps Humphrey Taylor, President of Louis Harris Associates, who've done surveys of consumer attitudes and practitioner attitudes in the UK, Canada, and the U.S., might help us think more realistically about some of that.

We need more emphasis in a future meeting on the population perspective. The contributions of the population health program in Canada under Professor Evans' leadership have been of great importance in terms of the way we think about these issues now, in contrast to the way they were not thought about ten years ago. There was a very good issue of Daedalus (Dec. 1994) called "Health and Wealth," which was based on the work of the Population Health Program. There is the recent book by Evans, Barer, and Marmor, "Why Are Some People Healthy and Others Not?," illuminating those issues. Professor David Kindig has recently finished a book, "Purchasing Population Health," which adds an additional dimension to the discussion. I believe a conversation around workforce issues in the population health context would be helpful.

The role of culture was not discussed directly, but was an underlying theme. We didn't have Professor Margaret Lock or another world class anthropologist meeting with us. Robert Darnton wrote that only one thing seems clear to everyone who returns from field work, that other people are other - they do not think the way we do. Lynn Payer, who is a journalist, wrote a wonderful little book called, "Medicine and Culture." She wrote that while medicine benefits from a certain amount of scientific input, culture intervenes at every step of the way. She compared medical care in Germany, France, Great Britain, and the United States. She found the factors characterizing medical care in Great Britain were economy, empiricism, and what she called the stiff upper lip. She noted that the most striking characteristic of British medicine is its economy. While office visits were a little more frequent than in the US, they were shorter, less likely to include laboratory and x-ray examinations, and resulted in fewer prescriptions. The US she described as aggressive. She wrote that the imperative to intervene was critical to the American physician's identity. Two dear friends, both physicians and now deceased, Jacques May and John Fry, have both described the American health care system and the American physician. Doctor May wrote about American health care in the early 1960s. He described it as a "one ill, one pill, one bill" system of health care. We're beginning to change, but not very much. John Fry described American physicians as "god's sakers." By that
he meant, "For God's sake, do something." And a French physician, comparing France and the United States, said in France they use ineffective medicines in an ineffective manner, while in the States, we use effective medicines in an ineffective manner. Culture is important, and it might be one of the themes for a future conference.

In the three countries, health policies will be driven by the budget, and I think that could lead to some discussion in a future meeting about the policy process itself, and the factors that influence that process and why you can get better results in Great Britain and in Canada in health policies than we do in the United States. In the United States we're peculiar, some people call it American exceptionalism. The American character is one of the driving forces in policy. We started as a country that was against the government. We designed the government to protect the people against the government, so we have checks and balances. We also have a federal system, we have a system that cherishes its pluralism, and of course that permits the special interests to thrive in the United States and have a huge influence on policy. We do things incrementally, at least usually. Well, we could spend I think a week discussing some of those issues and some of the comparisons.

Finally, I would just add one more topic for the future. That was one that Peter mentioned, and I would call values. First, I think we can, in terms of values, think about some of Jack Wennberg's views about patient preference, and patient values which differ often from the practitioner values. When the patients are given adequate information to make decisions about what course of therapy to follow, they often choose not to follow their physician's advice. The second is more related to Peter's point about the moral barriers. In a very recent issue of the Journal of the American Medical Association, in a commentary piece, Uwe Reinhardt wrote the following:

Throughout the past three decades Americans have been locked in a tenacious ideological debate, whose essence can be distilled into the following pointed question: As a matter of national policy, and to the extent that a nation's health care system can make it possible, should the child of a poor American family have the same chance of avoiding preventable illness or being cured from a given illness as does the child of a rich American family?

The answer in the United States is "no." American physicians throughout this century, and particularly through the leadership of the American Medical Association, have played a major role in that decision, whether it was the repeal of the Shepherd-Tanner Act in 1928, which was designed to give federal grants to states (it had been a short-lived program from 1921 to 1928) to improve maternal and child health services, or the killing of a maternal and child health insurance program which was instituted very successfully during the Second World War for dependants of low income military personnel. It was killed because the AMA wanted it killed. Or, the defeat of Mr. Truman's health insurance program, or Roosevelt's attempt to put health insurance into the Social Security Act of 1935. The AMA opposition, along with business in 1935, defeated that. Or, the recent defeat of President Clinton's proposed health care reforms. The AMA wasn't solely responsible, but it certainly contributed. If American physicians had
lined up behind some universal health insurance, I'm sure we would have universal health insurance today.

Of course, in sharp contrast is both the National Health Service and Canada's provincial health insurance and the Canada Health Act, which to my mind represent the best values, both in the United Kingdom and in Canada. Now, I regret to say that the "no" answer in the United States represents the current value in the United States. Can we do something about it? Yes, I think we can. Would a question or a discussion of values be appropriate for this group at some future meeting? I think it would be. I think it's critical to how we think about these issues.
Conference Program
# Second Invitational Trilateral Physician Workforce Conference

**November 14-16, 1997**  
**Delta Pacific Resort and Conference Centre, Richmond BC, Canada**

## Friday, November 14, 1997

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<tr>
<td>19:30</td>
<td>Opening Reception (Richmond Room)</td>
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## Saturday, November 15, 1997

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<tr>
<td>7:00</td>
<td>Breakfast (Round Room)</td>
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<tr>
<td>8:30</td>
<td>Opening Plenary</td>
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<tr>
<td>9:15</td>
<td>Morning Panel: Overservicing</td>
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<tr>
<td>12:00</td>
<td>Lunch (Round Room)</td>
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<tr>
<td>13:15</td>
<td>Afternoon Panel: Primary Care Reform</td>
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<td>18:00</td>
<td>Conference Dinner (Round Room)</td>
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**Morning Refreshment Break mid-morning (time TBA)**

## Sunday, November 16, 1997

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<td>Breakfast (Round Room)</td>
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<td>8:30</td>
<td>Morning Panel: Substitution</td>
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<tr>
<td>11:00</td>
<td>Closing Session</td>
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**Morning Refreshment Break mid-morning (time TBA)**
List of Participants
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Vancouver, BC November 14-16, 1997

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