

respiratory depression and ventilatory failure was not diagnosed, resulting in a profound, life threatening respiratory acidosis. The diagnostic problem may have been compounded by the supplemental oxygen, which may have maintained the oxygen saturation in spite of respiratory depression.

Ideally, the only satisfactory method of monitoring ventilation is to measure both the adequacy of oxygenation and the adequacy of carbon dioxide elimination. Pulse oximetry is non-invasive, easy to use, and widely available. End tidal carbon dioxide concentration, however, is more difficult to measure (capnography), and, although routinely measured in the operating theatre, is not widely measured elsewhere. The alternative of measuring arterial blood gases will indicate PO_2 and PCO_2 , but the procedure is more invasive and at best is performed only intermittently.

As this case shows, respiratory depression may develop insidiously, may not be revealed by routine monitoring of vital signs, and may be present despite a normal oxygen saturation. Clinicians should be aware of the limitations of oximetry and not rely on this technique as the sole means of assessing the adequacy of ventilation, be it in a critically ill patient in the intensive care unit or a patient receiving sedation for minor surgery. Moreover, if respiratory depression or failure is suspected the adequacy of carbon dioxide elimination should be assessed.

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Rationing in Action

Prioritising health services in an era of limits: the Oregon experience

John A Kitzhaber

This paper is based on a speech given at the conference on Priority Setting in the Health Service, London, March 1993. A collection of papers from the conference will be published in book form later this year.

How do we decide who should receive the benefits that medical science has to offer? One approach to this decision process, that used by the state of Oregon, is described: who and what are covered, and how health care is financed and delivered, are considered. Oregon's priorities were set on the basis of broad consensus. The objective of health care reform, it was agreed, is to improve, maintain, or restore health—not universal coverage, access to health care, or cost containment. A Health Services Commission was created to consider clinical effectiveness and, through public involvement, to attempt to integrate social values into the priority list. Oregon's legislature can use the list to develop an overall health policy which recognises that health can be maintained only if investments in several related areas are balanced.

As we approach the end of the twentieth century, health care systems around the world are struggling with the dual problems of cost and access. Although there are vast differences between the British system and the American system—and between these systems and those in Canada, Germany, or New Zealand—there is a central issue shared by all nations: what are we buying with our health care dollars and what is the relationship between these expenditures and health?

As populations age and technology expands the cost of health care rises. At the same time we find ourselves facing the need for increased investments in education, in infrastructure, in transportation systems, and in addressing a host of other pressing social problems such as environmental pollution, crime, and substance abuse. The competition for limited public resources between these diverse needs means that we can no longer afford to do everything that medical science has to offer for everyone who might benefit from it. In short, we must set priorities. The question is, how do we decide?

In this paper I will examine how this question was answered in the state of Oregon. My purpose is not to convince you of the merits of the Oregon process, nor to draw any conclusions about its possible relevance to the United Kingdom. Rather, my purpose is to describe our experience as objectively as I can and to share with you what insights I have gained through the

experience from my dual perspective as both an American politician and a primary care physician.

Framework for health care reform

Health care reform can be viewed as a debate over how to answer three questions—Who is covered? What is covered? How is it financed and delivered?—asked in the context of an ultimate objective. (This framework is drawn from Aristotle's "teleologic" view of change, according to which change (or reform) must be driven by a clear objective, or final cause, and by three subsidiary factors: the material cause, the formal cause, and the efficient cause.) Successful reform, then, must start with consensus on a clearly articulated objective and must explicitly answer these three questions in a way that is consistent with that objective.

The need for consensus on an objective may sound obvious, but consider the current national health care reform debate in the United States, where the objective seems to be to reduce cost, to improve access, or both. But is reducing cost really the end or is it the means to an end? Why do we want to reduce costs? Because cost is a major barrier to access. Why do we want people to have access to health care? Because we want people to be healthy, which is important to individuals and to our society. Thus, both reducing costs and improving access are actually means to an end—the end, or objective, being to improve, maintain, or restore health. I will elaborate further on this point later.

Who is covered?

Now let us turn to the three questions. The first question—"who is covered?" is not really at issue—or at least is not particularly controversial. Currently in the United Kingdom, for example, or in Canada, or New Zealand, the answer to this question is "everyone." These countries have developed systems in which virtually all citizens have coverage for some level of health care: universal coverage—with eligibility based generally on citizenship.

The United States, however, has never had a national policy of universal coverage. In fact, eligibility for coverage under the two major government financed programmes, Medicaid and Medicare, is based not on citizenship but rather on category. These two

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programmes were enacted in 1965 in reaction to President Johnson's Task Force on Health, which reported that elderly people and children in low income families faced the greatest financial barriers to access to good health services. The task force recommended that Congress expand maternal and child health programmes for the poor and enact publicly financed hospital insurance for the elderly. Thus the objective was not universal coverage but rather coverage only for those interest groups or "categories" which, in 1965, were perceived to have the greatest difficulty gaining access to the system.

As a result Medicaid is a programme that provides all "medically necessary" services to certain "categories" of poor people but not to all poor people. To be eligible one must fit into a congressionally designated "category" such as families with dependent children or the blind or disabled. Just being poor is not enough. Poor men and women without children, for example, are ineligible even though they may be deeply impoverished. In other words, the United States has developed a system that makes an artificial distinction between the "deserving poor" (those who fit into a category) and the "undeserving poor" (those who don't). Medicare, on the other hand, is a federally administered "entitlement" programme for those in the category over the age of 65. It is not means tested, so everyone over the age of 65 receives publicly subsidised health care regardless of whether they retire in poverty or on \$2 million a year.

Under this categorical approach to eligibility wealthy retired citizens, such as former presidents Jimmy Carter and Ronald Reagan, are entitled to publicly subsidised health care that is paid for in part by the tax contributions of working poor citizens who have none. Under this system, millionaires over the age of 65 are entitled to coverage for all the latest medical technology while poor childless women are entitled to no coverage whatsoever—not even for basic preventive care of proved effectiveness—until or unless they become pregnant.

What is covered?

Due in large part to these gross inequities, there is broad and growing consensus in the United States that universal coverage for some level of health care must be a central part of reform. For that reason, most of the current debate revolves around the third question, how is it financed and delivered? The debate over global budgets and managed competition, over "pay or play"

mechanisms or a single payer system—all are variations on the answer to this question. The crucial question of what is covered, however, goes largely unaddressed.

In the United Kingdom the issue of priority setting in the National Health Service (the focus of a recent conference in London) is an attempt to come to terms with the question of what is covered? Answering this question is the fundamental common challenge of health care systems around the world. The United Kingdom has a system of universal coverage but in order to afford it people are beginning to ask themselves what they are buying for their health care money and what the relation is between those expenditures and health. In the United States, although the current administration continues to shy away from this issue, it is clear that to achieve universal coverage we must ultimately come to terms with the question of "coverage for what?"

Hospitalisation only? prescription drugs? immunisations? organ transplants? new technologies? experimental procedures? facelifts? liposuction? sex change operations? everything? nothing? Is it significant that advocates for reform are very vague on this issue. We hear such words as "comprehensive" or "basic" or "medically necessary," but nowhere do we hear a definitive explanation of exactly what that means in terms of real health services. President Clinton has promised to provide all Americans access to a "basic" level of health care, but he has not defined exactly what constitutes "basic" care, nor has he outlined a process by which it can be clarified.

Unless we define basic care as "everything for anyone who might possibly benefit from it"—which is incompatible with both deficit reduction and making other important social investments, some of which also affect health—then some difficult choices will have to be made. And of course we are reluctant to take this step because when we define what constitutes basic care we must also define what is not basic, and I can tell you from personal experience that confronting this issue is very controversial. Yet to avoid it is to continue the futile debate over how to pay for "something" for "someone," which is like debating the budget for a banquet for which there is no defined menu and no guest list.

We are reluctant to come to terms with this issue, at least in the United States, because, although we are unwilling (and increasingly unable) to pay for everything, we are also unwilling to set limits. Not only is setting limits politically unpopular, in the process of doing so—in the process of determining the level of care to which all citizens will have access—society must come to terms with the relationship between the provision of health care and the pursuit of health; with the relative effectiveness and appropriateness of medical services and procedures; with issues of administrative costs and medicolegal liability; with issues of social expectations and individual responsibility; and with a host of difficult moral and ethical questions.

Clearly, the question of what is covered is the most difficult, the most controversial, and yet perhaps the most important of the three. It is the sine qua non of lasting health care reform, and for that reason there must be a process by which it can be answered—a process that involves the public, is linked to the reality of fiscal limits, and has clear lines of accountability

Setting Oregon's objectives

As I mentioned earlier, to answer meaningfully the three questions of who is covered, what is covered, and how it is financed and delivered, there must first be consensus on the objective. Reaching broad based



Oregon's health plan is based on publicly debated priorities

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consensus on the objective was the starting point of the Oregon Health Plan. We asked ourselves whether the objective was to give all Oregonians access to health care, or to keep Oregonians healthy. We determined that the objective must be health—not universal coverage, not access to health care, not cost containment, but rather, health. Health care is a means to an end, not an end in itself—that is, health care is not necessarily synonymous with health.

Infant mortality, for example, reflects more than just a lack of prenatal health care. It also reflects housing problems, environmental problems, teenage pregnancies, and the growing problem of substance abuse. The point is that we cannot achieve the objective of health as long as we spend money only on the medical complications of substance abuse, yet ignore the social conditions that lead to addiction in the first place. And that means having the budgetary flexibility to invest in such things as housing, education, and economic opportunity.

Beyond that, it should also be clear that medical procedures are not of equal value and effectiveness in producing health. For example, nearly half of the Medicare budget is spent on the last few months of life and it is estimated that well over half of the costs of intensive care units are expended on non-survivors. By no stretch of the imagination could these expenditures be said to be effective or to produce health. Too often they merely prolong the process of dying.

Thus, the primary objective of health care reform efforts must be to develop not merely a strategy to purchase health care, but rather a health policy—an integrated approach in which expenditures for health care are balanced with expenditures in related areas which also affect health. In addition there must be some criteria by which to ensure that the expenditures we make for health care actually produce health.

Let us assume, for the purpose of argument, that we agree on a policy objective of health. This means that the three questions must be answered in a way that maintains, improves or restores health. The Oregon Health Plan represents a process and a framework by which this can and was accomplished (box 1). As I describe this process, I will touch only briefly on how we answered the questions of who is covered and how it is financed and delivered; I will focus most of my attention on the question of priority setting—on answering the central question of what is covered.

Box 1—The Oregon Health Plan

Objective:	Health
Who is covered?	Everyone (universal access)
What is covered?	Uniform basic benefit
How is it financed?	Public and private partnership

Who is covered? How is it financed?

To the question “who is covered” Oregon answered “everyone” since access to some level of health care is clearly necessary to achieve the objective of health. Universal coverage was accomplished through the enactment of two bills in 1989. Senate Bill 27 extended eligibility for Medicaid to all those with a family income below the federal poverty level (\$991/month for a family of three). Senate Bill 935 mandated comparable employment based coverage for full time workers and their dependants with family incomes above the federal poverty level. That is, we expanded the role of government in subsidising care for the poor and built on our existing employment based system of coverage. (As currently written the Oregon Health Plan will provide coverage for 95% of Oregonians under the age of 65 (those over 65 are covered by

Medicare). It misses part time workers with incomes above the federal poverty level and seasonal workers, who may spend part of the year outside the state.)

Thus, to the question of how is it financed, Oregon answered: “through a public-private partnership.” Society, through general tax revenues, was responsible for those without the ability to pay, while those with incomes above the federal poverty level would receive workplace based coverage with the costs split between the employer and the employee.

What is covered?

The move toward universal coverage (a policy Great Britain has already achieved) shifted the debate from “who is covered?” to “what is covered?” To answer the question of “what is covered?” in Oregon, a Health Services Commission was created, consisting of five primary care physicians, a public health nurse, a social worker, and four consumers. The members were appointed by the governor and confirmed by the senate after public hearings. The commission was charged with developing a “list of health services ranked in priority from the most important to the least important, according to the comparative benefits of each service to the entire population being served” and judged by a consideration of clinical effectiveness and social values.

To carry out the requirement to consider clinical effectiveness, the commission used medical “condition-treatment pairs” gleaned from two widely recognised classifications of diagnosis and treatment, the Current Procedural Terminology (the CPT-4 codes) and the International Classification of Diseases (the ICD-9 codes). Examples of condition-treatment pairs are appendectomy for acute appendicitis, antibiotics for bacterial pneumonia, and bone marrow transplant for leukaemia. The initial list of nearly 3000 pairs was substantially reduced by combining those for which treatment and outcome were essentially the same. For example, there are multiple codes to describe various kinds of uncomplicated fractures of the long bones of the upper arm. Since the treatment for such fractures is essentially the same, and since outcomes are similar, these codes were consolidated into a single condition-treatment pair. By this process the initial list of some 3000 pairs was reduced to around 1000.

The determination of clinical effectiveness was based on the input of panels of physicians who were asked to provide certain clinical information about each condition-treatment pair in their areas of practice. Over 7000 hours of volunteer time were given by Oregon physicians to this effort. We recognise that much of this information represents a consensus by physicians rather than hard empirical outcomes data. None the less, it provided a snapshot on how medicine was currently being practised in Oregon and offered a starting point and a rational framework in which better information on outcomes could be integrated as it became available. It is also important to note that the prioritisation process is dynamic and ongoing. That is, a new priority list is generated each budget cycle to take into consideration new technologies and new information on outcomes.

In addition to a consideration of clinical effectiveness, the commission set up a broad based public process to identify and attempt to integrate social values into the priority list. The statute specified that this public involvement take three forms. Firstly, the commission was required to “actively solicit public involvement in a community meeting process to build a consensus on the values to be used to guide health resources allocation decisions.” Secondly, the commission was required to hold a series of public hearings around the state and to solicit “testimony and information” from a full range of health care interests

including all recognised advocacy groups for various populations and illnesses and all recognised health care providers. Finally, the legislation required that the Health Services Commission and all of its proceedings be subject to full public disclosure under Oregon's open meetings laws, which govern public bodies.

Involving the public

The Health Services Commission, aware of the importance of public involvement to the success of its work, went well beyond the outreach process required by the legislature. It immediately contacted the various health care interest groups in the state (especially advocates for the poor, the uninsured, and for consumers in general) and enlisted their assistance in generating public participation. By encouraging attendance at Health Service Commission meetings and hearings, and by soliciting testimony, we sought to ensure that the commission received input and information from the broadest possible citizen base. While it is clear that our initial efforts to involve a representative cross section of citizens can and must be improved, the level of public participation in the commission's work was unprecedented, even in a state that prides itself on open and accessible government.

To fulfil the legislative requirement for a community meeting process, the commission turned to Oregon Health Decisions, a grassroots bioethics organisation founded in 1983 by Ralph Crawshaw, a Portland psychiatrist, and Michael Garland, an ethicist at the Oregon Health Sciences University. Dedicated to educating Oregonians on the health policy choices confronting them and on the consequences of these choices, Oregon Health Decisions had been conducting community discussions on a variety of ethical issues for nearly 10 years. Under the auspices of this group the Health Services Commission organised the most extensive town hall meeting process ever conducted in the state. The initial objective was to have at least one town hall meeting in each of Oregon's 36 counties. Not only was that objective met but multiple sessions were conducted in more densely populated areas, bringing the total number of town hall meetings to 47.

After the meetings were completed, the results and opinions of the participants were tabulated and assembled into a report for use by the Health Services Commission and the legislature. The resulting document, *Health Care in Common*, was used extensively by the Health Services Commission in its deliberations and stands as an exceptional example of constructive activism by a dedicated group of citizens.

The first priority list, completed in February 1991, consists of 709 condition-treatment pairs divided into 17 categories. The priority of the categories is based on the Commission's interpretation of the social values generated from the public involvement process. Within each category the ranking of the condition-treatment pairs reflects the benefit likely to result from

Box 3—Results of the Oregon Health Plan's process

- Recognition of fiscal units
- Universal coverage
- Health policy
- Clear accountability
- Consensus definition of "basic care"

each procedure and the duration of the benefit. (Mental health services as well as physical health services are included in the plan; a somewhat different priority setting process was needed for chemical dependency services.)

Services in the highest category were those for acute, fatal conditions where treatment prevents death and returns the individual to his or her previous health state (such as an appendectomy for appendicitis) (box 2). Because of the high value placed on prevention by those participating in the community outreach process, the categories of maternity care (including prenatal, natal, and postpartum care) and of preventive care for children ranked very high. Also ranked high as a direct result of the outreach process were dental care and hospice care. At the bottom of the list were categories of services for minor conditions, futile care, and services that had little or no effect on health status.

The final priority list was given to an independent actuarial firm, which determined the cost of delivering each element on the list through capitated managed care. The list and its accompanying actuarial data were given to the legislature on 1 May 1991.

Balancing the health care budget

Since the legislature is statutorily prohibited from altering the order of the priorities as established by the Health Services Commission, it was required to start at the top of the list and determine how much could be funded from available revenues and what additional revenues would be needed to fund an acceptable "basic" package (box 3). In this way, the question "what is covered?" was directly linked to the reality of fiscal limits.

Furthermore, since the state could no longer arbitrarily "ration people" for reasons of budgetary expediency, everyone retained coverage (universal coverage) and the debate centred on the level of that coverage: on the answer to the critical question, what is covered?—on what we as a society are willing to fund, and thus guarantee, to all of our citizens.

Because of Oregon's constitutional requirement for a balanced budget, it was clear that increases in the health care budget must come at the expense of other programmes such as education or corrections. This enabled the legislature to begin to develop an overall health policy which recognises that health can be maintained only if investments in several related areas are balanced.

Finally, because of the list and the explicit nature of the process, the legislature is clearly and inescapably accountable not just for what it funds in the health care budget but also for what it chooses not to fund. This kind of accountability is a major departure from the current system.

As a result of this accountable and explicit process the 1991 Oregon legislature reached consensus on the definition of basic care by appropriating \$33 million in new revenue, which funded all condition/treatment pairs through line 587 on the list of 709. The resulting benefit package, with its strong emphasis on primary and preventive care, is eminently defensible (box 4).

Box 2—High ranking priorities

- Acute, fatal conditions where treatment prevents death and leads to full recovery
- Maternity care
- Acute, fatal conditions where treatment prevents death but does not lead to full recovery
- Preventive care for children
- Chronic, fatal conditions where treatment prolongs life and improves its quality
- Comfort care

Box 4—Consensus definition of basic care

- Initial evaluation and diagnosis
- All preventive and screening services
- Dental services
- Hospice care
- Prescription drugs
- Routine physical examinations
- Mammography
- Most transplants
- Physical and occupational therapy
- Virtually all Medicaid mandates

It covers the initial evaluation and diagnosis for all conditions, virtually all current Medicaid mandates, including all preventive and screening services, as well as a number of important services not required by Medicaid, including dental services, hospice care, prescription drugs, routine physicals, mammography, most transplants, and physical and occupational therapy. (Because the prioritisation process is dynamic and ongoing, a new list was submitted to the 1993 legislature. This second list consists of 494 line items. Funding the new list through line 563 would be equivalent to the benefit level originally funded by the 1991 legislature. At the time of this writing, the legislature had not yet completed its deliberations on funding the new list.)

It is important to recognise that the benefit package we have funded serves as the minimum standard not only for the Medicaid programme but also for the 360 000 Oregonians who will come into the system on the employer side by 1995. By then the package will become the standard benefit offered by all private policies in the state.

Finally, the Oregon Health Plan includes a "liability shield" for providers—a statutory distinction between actual medical malpractice and not providing a service that society has determined not to fund. This will help reduce defensive medicine and will allow society, not the courts, to determine the level of care it wishes to guarantee to all of its citizens. Furthermore, it will allow the development and actual implementation of practice standards without substantially increasing the risk of medical malpractice suits. Perhaps most importantly, however, it will allow health care providers to continue to be patient advocates within the context of the resources society has made available.

This then, is the Oregon Health Plan. On 19 March, 1993 the Clinton administration granted Oregon the

federal waivers necessary to proceed with implementation. At the time of writing, the Oregon legislature was in the process of funding the new priority list, and the programme is expected to be operational by 1 January 1994.

Results of consensus

Although viewed as controversial outside the state, the plan was enacted with broad based support. It was not achieved through confrontation nor by trying to find villains and scapegoats. Rather, it represents a consensus building exercise that was supported by the Oregon Medical Association, the Association of Oregon Hospitals, consumer groups, organised labour, and the business community. It passed both houses of the Oregon legislature with huge majorities in both parties.

Our success was due in large part to our willingness to challenge openly two of the underlying assumptions of the current American health care system: that health care is synonymous with health and that all medical services are of equal value and effectiveness. We may pretend that this is not so, but as Thomas Henry Huxley pointed out, "Facts do not cease to exist just because we choose to ignore them." The fact is that we have become obsessed with the delivery of health care rather than with the pursuit of health. It may be controversial and politically unpopular to reduce "benefits," but if by benefit we mean something that maintains, restores, or improves health then much of what we currently spend our health care budget on would not qualify as benefits and could therefore be eliminated without "rationing" health care and without adversely affecting health.

As I stated at the beginning of this paper, it has not been my purpose to convince you of the merits of the Oregon process nor to draw any conclusions about its possible relevance to the United Kingdom. I believe, however, that ultimately Britain too must explicitly answer the question, what is covered. Whether this answer is arrived at through a process such as the one we used in Oregon or by some other means is not important—what is important is that it be done. And if there is one thing we have shown in Oregon, it is that it can be done—through a process which brings the public and the medical community together in common cause to work for the common good.

Copies of *Health Care in Common* can be purchased from Oregon Health Decisions, 921 SW Washington (Suite 723), Portland, Oregon 97205. Copies of the priority list and of the report of the Health Services Commission can be purchased from the Office of Medical Assistance Programs, Writer's Group, 500 Summer NE, Salem, Oregon 97310-1014.

ANY QUESTIONS

Are there any health hazards from baggage scanners?

The question presumably relates to x ray examination of baggage, such as that found in airports. The systems are subject to the requirements of the Ionising Radiations Regulations 1985 and the associated approved code of practice. This code requires the dose rates at positions where members of the public can have access to be less than 1 $\mu\text{Sv/h}$. For comparison, the dose rate in a jet aircraft at cruising altitude, due to cosmic radiation, is approximately 5 $\mu\text{Sv/h}$.

The highest dose rates exist close to the lead rubber flaps at the entrance and exit points, but these are accessible only to the hands of the operators and over a year the integrated exposure time at these positions is relatively short. The equipment will have several

engineered safety features that limit the potential for exposure to radiation and will be subject to routine inspection, including the measurement of accessible dose rates. Staff operating this type of equipment are unlikely to exceed a few tens of μSv in a year or a percentage or so of the 2200 μSv a year that is routinely received on average from natural sources of radiation.

The equipment is designed such that photographic film passing through the x ray beam will not be noticeably affected by the radiation. To achieve this the x rays are collimated to a fine pulsed beam that scans across the conveyor belt, and sensors build an image of the baggage. The worst case scenario is of a young child getting on the conveyor and being carried through. Measurements have shown that in such circumstances the radiation dose would only be a few μSv .

Thus there are no important radiation hazards.—
J R CROFT, *head, Southern Centre National Radiological Protection Board*