

**Managing Waiting Lists to  
Achieve Distributive Justice**

**Steven Lewis**

**Claudia Sanmartin**

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*For discussion purposes only*

## I. INTRODUCTION

The Western Canada Wait List (WCWL) project has developed tools to prioritize waiting list patients in 5 distinct areas. When refined and applied, these tools will make a significant contribution to the management of waiting lists in the Canadian health care system, and will fulfill the WCWL mandate. Making progress in these areas not only constitutes a major advance, it also raises a number of conceptual and practical issues for the overall organization and management of health services in Canada.

In a publicly financed health system, waiting is among other things a measure of distributive justice. Who waits, for what, for how long, and in what condition? Are variations in wait times systematic or random? To what notion of distributive justice would most people subscribe? This paper explores some of the logical and ethical implications of the WCWL work. Specifically, it addresses the systemic issues both partially resolved and brought into sharper relief by the initial domain-specific tool development and refinement work. The central questions arising from this work are:

1. Once prioritization tools have been developed within discrete areas or clusters of services, what are the implications for the health care *system* as a whole? What problems of distribution and emphasis *across* services emerge? What are the intended and unintended consequences of developing and applying tools in some areas and not others?
2. Are prioritization tools that rank patients in order of need sufficient, or is it essential to establish thresholds for intervention and entitlements to service? Is fairness alone sufficient, or once achieved does it shift the focus to the adequacy of service levels and entitlements—what we might call justice?
3. Do those responsible for overall system management (provincial governments, regional health authorities, facility managers) need tools to manage waiting lists collectively across the various spheres of activity? Can we expect that individually developed and validated tools will collectively create a fair and adequate system without an explicit effort to compare and manage them collectively?

## II. THE INEVITABILITY OF CROSS-PROCEDURE PRIORITIZATION

Formally, cross-procedure prioritization takes multiple lists of people waiting for service and consolidates them into a common queue. It can combine narrowly, e.g., putting all ophthalmological surgery into a single system, or broadly, combining diagnostic, medical, and surgical procedures for purposes of allocating resources. Few jurisdictions have formal mechanisms for cross-procedure prioritization—only New Zealand has anything approaching a system-wide scale. At first glance it may appear to be a structural innovation that fundamentally changes health care organization and management. Yet cross-prioritization occurs in every multi-service program, institution, jurisdiction, and system, whether privately or state financed. It is obscured because it is done implicitly rather than explicitly.

### ***Scarcity and Prioritization***

Scarcity, or limit, is why we set priorities, and there is a widespread perception that the gap between demand and supply in health care is large and growing. (Not everyone shares this view—see Frankel, Ebrahim and Davey Smith, 2000.) Many programs and services compete for a common pool of money and sometimes, the same capital and human resources. There is an extensive literature on priority-setting, but none that arranges patients with different needs awaiting different types of interventions in a rank-ordered queue.

Scarcity and the obligation to choose are inherent in current decision-making, but cross-prioritization is usually implicit and unarticulated, and hence lacks transparency. The system “muddles through” a series of compromises and balancing acts, occasionally destabilized by real or apparent crises. In this always-shifting environment, different criteria are used to assess various resource claims at various times. Sometimes equipment is purchased to “keep up with the Joneses.” Sometimes new money flows to where wait times are “unacceptably long.” Squeaky wheels often get oiled, and some cases attract more public attention and support than others. Periodically adjustments are made to address what are obviously anomalous or unacceptable patterns of service.<sup>1</sup> But there is no systematic, ongoing, and transparent framework describing how choices are made, and how they link need to accessibility. Whether cross-procedure prioritization should be done is not the issue—it is done. The question is whether it will be done formally and transparently, and whether it will apply at the level of programs or individual patients.

### ***Cross-Prioritizing Waiting Lists***

Cross-procedure prioritization can occur on different levels and for different reasons. Waiting lists are variously conceptualized and defined as indicators of access, unmet needs, misallocation of resources and/or inadequate resources (Sanmartin et al., 1998). In addition to improving the organization and management of waiting lists, prioritization tools are designed to improve the accuracy of the information about needs and outcomes. Both clinicians and administrators can use this information to better manage health care services at different levels (see Table 1).

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<sup>1</sup> This tends to be a uni-directional phenomenon, however. People notice when the service appears to be substandard and the burden of suffering or access is unreasonable. Rarely, if ever is there a scaling back of a possibly oversubscribed service or one where the benefits are minor. The recent literature on cardiac surgery among the elderly and its impact are revealing. Despite five to seven times the rate of surgery in the US compared to Canada, mortality outcomes were little different at 30 days and identical one year post-operatively (Tu et al, 1997). The American response was not, evidently, to reduce the rate. Some research suggests a quality of life advantage for the US population, but again, there are no explicit discussions of resource allocation (Mark et al, 1994). But more recent research reveals a major risk of post-surgical cognitive decline (Newman et al, 2001).

Table 1: Cross-procedure prioritization scenarios

	Institutional Level	Regional Level	Provincial Level
Patient prioritization	X		
Access to services	X	X	
Unmet needs	X	X	X
Resource allocation	X	X	X

Explicit cross-prioritization requires some form of commonly accepted and valid indicators of need and prospect to benefit. At the institutional or operational level, there would be a comparison of patients awaiting, say, hip replacement versus cataract extraction surgery. A valid rank-ordering requires that all patients with the same point-count or score have the same degree of urgency. Ideally the total point-count for each patient category would derive from many of the same sub-scale measurements (e.g., pain, loss of function) while others would be specific to the problem at hand (e.g., visual acuity). At the level of a health authority or jurisdiction, prioritization tools may also be used to provide more accurate information about unmet needs for services. Regional health authorities, for example, might compare the number of patients at different levels or “bands” of urgency (e.g., point count of <25, 25-50, >50) to determine where the greatest unmet need exists: are there more high-scoring patients waiting for general surgery than, say, for hip replacements. Once again, the validity of these comparisons will depend on whether or not the scores reflect the same level of urgency across procedure groups.

Once there are valid and transparent estimates of how service needs are distributed, the natural next step is to use the information to manage resources across procedure and/or specialty groups at all levels. Even though they are almost never standardized or consolidated, waiting lists are used by some institutions in Canada to allocate resources, such as operating time, both within and across service categories (McDonald et al., 1998). Currently, governments often use crude patient counts and non-standardized wait time information (or even anecdote) to allocate or reallocate resources to deal with perceived problems. As the quality and comprehensiveness of information improves, it will become more difficult to justify macro-level allocative decisions that ignore it. With good information both the rationale for decisions and the consequences of acting (or not) become much clearer.

The development tools and improved information systems will not eliminate risk or controversy. The application of the tools will bring into sharper relief issues such as the appropriate rate of surgery (not just ranking patients in a queue); human resource planning; and the definition of urgency. Establishing a benchmark rate for utilization of a particular service implies defining a threshold for intervention; ideally, this would incorporate estimates of both positive and negative outcomes (Sinclair et al, 2001). This exercise is almost never done, but without it, the impact of reducing waiting times cannot be fully understood. Furthermore, the phasing in of prioritization tools may skew the system towards those areas where the systems are in place at the expense of others awaiting development. The areas without tools may be at a disadvantage because they are unable to make a transparent and data-driven case for their share of resources.

Cross-prioritization explicitly acknowledges the competition for resources that exists in a finite system that cannot immediately meet all legitimate need or demand. However, it functions differently depending on the similarities and differences among services. In some domains there is competition for the same pool of funds, the same equipment, the same personnel, and the same physical plant—e.g., patients awaiting hernia repair vs. those awaiting gall bladder removal (these areas were addressed in the WCWL general surgery panel). In other cases there is competition for space and equipment but not the same people—e.g., a hip replacement candidate vs. a cataract surgery patient, both of whom need OR time but have little else in common. And there are cases where the competition is mainly about money, e.g., children’s mental health vs. geriatric medicine. They do not share personnel or compete for physical plant, but they do lay claim to money from a common pool in the case of a regional health authority.

Once the tools are refined and implemented in individual areas, inevitably there will be cross-area comparisons, especially but not exclusively in regionalized systems. Imbalances and inequities unconfirmed by robust data can be ignored, but once accurate information is available, the issues are squarely in view. The question, “are the needs of hip replacement patients being met” can no longer be answered in isolation. It becomes, “how well are the needs of hip replacement patients being met in the system, compared to the needs of other equally deserving groups, in light of the resources available.” Moreover, the claims and desires of all groups for whom prioritization processes have been developed will be transparent to all. Eventually this will create pressure to define and standardize:

- The level of disability, risk, loss of function, pain, etc. (the variables that comprise the point-count) that triggers an entitlement to service;
- The total burden that one can expect to bear while waiting (a function of the point-count combined with duration on the list);
- In a probabilistic sense (since prospect to benefit is never entirely predictable and there are risks inherent in some procedures), the added value created by a successful service;<sup>2</sup>
- The threshold for cost effectiveness (in that the costs of services can be calculated and the minimum expected benefit per service or procedure is implicitly set by the point count that triggers the entitlement to service).

Thus needs, costs, benefits, and competition become more explicit among all services and procedures for which tools have been developed. There will be more objective measures to document variations in access, calling for an explicit rationale for allocation decisions that previously may have resulted from tradition, lobbying, interests, supply patterns, etc.

### **III. WAITING AND DISTRIBUTIVE JUSTICE**

The rationale for ordering wait lists within services or clusters of services is clear: in a system with finite resources, people may have to wait for services, and where waiting is inevitable, establishing one’s place in the wait list is important for a number of reasons. First, in some circumstances waiting can compromise the prospect to benefit from service. Where an

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<sup>2</sup> In some cases the benefit will be measured in reduced uncertainty or reassurance—for example, where people await diagnostic procedures such as MRI. In other cases there may be no absolute improvement in condition or quality of life, but a net benefit nonetheless compared to the outcome had there been no service.

early intervention might have effected a cure or arrested a decline, a later one might not be so effective. Second, for many conditions waiting entails real harm even if the ultimate outcome once the service is delivered is not compromised. Such harms include pain, anxiety, temporary loss of function, or a combination of these (West et al., 1991; Rigge, 1994; Roy & Hunter, 1996; Martin, 1995; Petrie et al., 1996). Minimizing harm is an ethical imperative in health care (*primum non nocere*). Third, waiting can in some cases increase the risk of an adverse event. Fourth, in a publicly financed health system, public confidence is associated with (among other things) the perceived fairness of the system. A system widely perceived as unfair will lose public confidence and support, calling into question its viability.

Put another way, wait list organization is a matter of distributive justice. Take the example of people awaiting hip replacement. Only if we were indifferent to the extent or duration of their pain or loss of function or quality of life would we conclude that the ordering of the queue is unimportant. If they could all be operated on within a week of confirmation that the procedure is warranted, rank ordering would be unnecessary because everyone would be treated equally and well. But in Canada, median waits are typically in the 60 to 90 day range (DeCoster et al, 1998, 2000; Nova Scotia Department of Health, 1996). In many cases, there is wide variation in waiting times at various levels and/or among practitioners and institutions (Bloom & Fendrick, 1987; Jacobs & Hart, 1990; Katz et al, 1991; Higginson et al, 1992, 1994; Naylor et al, 1995). If the two main goals of services are to reduce suffering and enhance health and/or functional status in a population, then “waiting too long” and “could have waited longer” are both problematic.<sup>3</sup>

### *Defining Fairness*

The perspectives on distributive justice described here apply generally to societies that democratically and reflectively support a government-run health care system, and specifically to the services for which people wait. Such societies are likely to be egalitarian in some respects, and inegalitarian in others. We also assume that all citizens value fairness, however defined; that is, they expect the publicly funded and administered system to treat them without bias.<sup>4</sup>

How would citizens want wait lists to be organized to achieve fairness? The options seem fairly straightforward. Fairness could be defined on the basis of one of four principles: randomness, where people are served according to a lottery system irrespective of need; desert, where access is a function of individual characteristics unrelated to their health status; order of

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<sup>3</sup> One might argue that it is logically impossible to have too short a waiting period, and in a system with infinite resources this is theoretically true. Leaving aside the benefit of “watchful waiting”, let us concede that as a general principle, waiting less is preferable to waiting more from an individual perspective. From a systemic perspective, however, if people with relatively minor pain, functional deficit, and risk of deterioration are served quickly while others wait longer, it is rational to conclude that they could and should have waited longer in order to produce the greatest collective health benefits. Furthermore, if the price paid for achieving wait times approaching zero is to resource the health care system at the expense of other sectors such as education, child care, or income support, overall population health status could decline. This argument implies a utilitarian perspective, where the goal is to maximize overall benefit (or reduce overall harm—they are two sides of the same coin)—which in some cases is a debatable and inadequate ethical starting point. That utilitarianism has its limits does not, however, invalidate it as an important operative principle for resource allocation in many circumstances.

<sup>4</sup> To be treated without bias is not the same as being treated equally. Societal values, norms, and rules may decree that people be treated differently based on various circumstances and characteristics. Absence of bias here means simply that the socially accredited selection and allocation rules are applied consistently.

presentation—first come, first served; or condition, i.e., on the basis of medical need and prospect to benefit.

In the first case, everyone deemed to require a service would be assigned a number and at regular intervals a draw would establish that day's (or the next month's) roster. Some people with moderate or minor impairment might be served the day after they are assessed, while others with severe and worsening impairments might wait a year. This system is fair in the strict sense of the term: everyone is treated equally by the lottery, and the likelihood of being served badly or served well is distributed randomly. Such a system is indifferent to both individual and collective outcomes. One would expect a low level of correlation between need and time waiting. In other words, the system is fair—it exhibits no bias—but capricious. Most reflective people would reject it because of the high probability of avoidable suffering and adverse outcomes. Recall that we have assumed a widely held preference for a publicly financed and universally accessible system. The foundation of this preference is a desire to allocate services on the basis of need. This preference would make little sense if people were as indifferent to how well or poorly need was addressed as the lottery version implies.

The second principle allocates access on the basis of how society defines merit (money, station, piety, occupation, etc.). Unlike the lottery system, merit-based access systematizes differential treatment. Individual access is predicated on position in the meritocratic hierarchy. Just as the best and brightest go to elite universities and the most talented athletes get to participate in the Olympics, so, too would the deserving get preferred access to health care. The system might provide preferred access on the basis of personal traits that have nothing to do with personal effort or talent—for instance, to people who inherit a title or a large sum of money. A more Calvinist formulation would be “justification [of preferential access] by works”—status has to be earned, not inherited or externally conferred. Such a system would be fair as long as the rules and consequences were broadly accepted. Again, this principle decouples need and access, and is therefore in serious conflict with the premises that underlie the preference for a publicly funded system. If most people genuinely preferred merit-based access (however defined), the likelihood of their also favouring a tax-based health care financing system is extremely small. The “non-meritorious” would be subsidizing preferential access for their more “deserving” fellow citizens, an outcome unlikely to be preferred by the majority (who by definition are unlikely to have preferred status).

The third case is a somewhat more orderly version of the lottery mechanism. It assumes that the order in which people present themselves for service correlates reasonably well with their needs. Rather than trying to establish other means for ordering the queue, this system leaves it to individuals to determine their needs and navigate the system in their own interests. The management of the system would be essentially passive, with time of presentation being the prioritization mechanism.<sup>5</sup> Fairness in this case derives from the assumption that individuals are the best stewards of their interests and can be expected to behave prudently, particularly where they know the rules of the game. This is in fact the mechanism used to order queues for most elective services in Canada.

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<sup>5</sup> Exceptions would be made for patients discovered to have a life-threatening condition exacerbated by waiting. The discussion here applies to circumstances where the consequences of waiting are not so dire.

In the fourth case, need, rather than luck or socially constructed notions of merit, is the allocative principle. There would be a determination of need<sup>6</sup> and people would be prioritized accordingly. Adoption of this fundamental principle still leaves philosophical work undone. For instance, a strict utilitarian would simply add up all the needs and prospects to benefit, then provide service to maximize the total benefit (both positive, in terms of health and functional capacity, and negative, in terms of reduced suffering). This is the “greatest good for the greatest number” case. A modified utilitarian or a rights-based system might build in some caveats, e.g., a certain volume of all types of services will be provided irrespective of the net benefit (or benefit: cost ratio) to recipients. Other provisions may be made for those with inherently minor needs to prevent them from being perpetually shunted down the priority list in favour of more serious needs (e.g., those needing wart removal). Regardless of the principles and processes ultimately developed, such a system expressly rejects arbitrariness and seeks to treat people not only fairly, but also justly.

The New Zealand wait list development process explicitly asked members of the public which version of fairness they thought should govern prioritization. The findings from focus group based research:

On the whole participants grew more uneasy using “desert” as a criterion, the more [the facilitators] explained it. This was even more true of any suggestion of using “merit.” The subjective nature of judgements made on the basis of merit became obvious in discussions.

[The] criterion of distributive justice most firmly endorsed was that of distribution according to need. This meant that resources could be unequally distributed so that the outcome is the same—so that everyone has the chance to ‘survive’ equally. (Campbell 1994, p. 9)

Ultimately, a preference for a publicly financed, universally accessible system propels us toward needs-based allocation. That the actual workings of the system suggests the presence of other principles may suggest disagreement about either the power of the needs-based principle itself, or its application. It may also suggest an absence of tracking mechanisms, the need to make choices in an environment of uncertainty, or practice variations that often occur in large and complex human systems. The development of wait list management tools makes transparency possible, and the transparency forces us to confront the distributive justice issues more directly.

### *The View from Behind the Veil*

It appears, then, that both the logic of a publicly financed system and the elicited preferences of people favour a needs-based approach. Within a certain service or cluster of services—say, orthopedic surgery—the argument for rank ordering is straightforward. We would

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<sup>6</sup> Need is not a self-evident construct and is a composite of a number of variables deemed relevant. Here the precise constituent elements of need are immaterial; we assume that there would have to be a process for determining both the elements themselves, and their relative weights, as was the case in the WCWL developmental panels. The technical dimensions of need are usually best articulated by clinicians, but the other dimensions require public validation.



be comforted to know that the more serious our need, the faster our service. Some might endorse notions of need that transcend health status narrowly defined, e.g. those for whom the service would facilitate a return to work might get priority over those who are retired. Such nuances are refinements, not a rejection, of the principle of needs-based prioritization. Hence the principle of “greater need, higher priority” would seem to hold unequivocally, but the meaning and application of the principle remain debatable.

If the case within a well-defined service or grouping of services is analytically and ethically straightforward, how does this generalize to the entire system? Consider again a citizen, this time behind the Rawlsian veil of ignorance<sup>7</sup>: not only does she not know her station or health status or age, she does not know what disease or trauma may befall her. She will get cancer or be struck by a car with the same probability as the society as a whole. Hence she must decide what kind of system, and its allocative principles and mechanisms, she would like before she experiences (or does not) real and specific health problems and service needs. Under what conditions would such a person conclude that unreconciled within-domain tools (such as those developed by the WCWL project) will collectively constitute a system whose consequences she is prepared to accept?

Generally, we would expect people to support a system where, for any given condition or procedure, they perceive that access is based on need and prospect to benefit (the WCWL focus group respondents shared this view). There will always be room for disagreement about whether people are treated identically by the system and whether the system takes into account all relevant factors. Some people may tolerate discomfort, pain, functional loss, and anxiety better than others, and their well-being is less compromised by waiting than someone in ostensibly identical circumstances. For others, the weighting of variables that contribute to their priority score or rating may seem improperly balanced—for instance, insufficient attention to capacity to work or participate in leisure time activities. Uncertainty will always come into play because the outcomes of services are often probabilistic. However plausible, objections of this sort do not strike at the core of the principle of needs-based access; rather they raise the issue of how well the prioritization system is calibrated and how even-handedly it is applied. Inept execution can thwart good intentions. In a realm as complex as waiting for health care, perfection is likely unattainable. These realities caution against abandoning a sound principle merely because it accomplishes some things and not others, or because it guides but does not micro-manage.

Assume that ultimately, there will be good tools, accepted by providers and the public, for all services and procedures that involve waiting. The many domains covered by wait list

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<sup>7</sup> The veil of ignorance was devised by the American philosopher John Rawls (*A Theory of Justice*, Cambridge MA: Harvard University Press, 1971) to illustrate how members of a society might choose among various ways to organize themselves and allocate goods. He argues that a compelling way to elicit preferences is to imagine that the citizens are ignorant with respect to their own circumstances. That is, they do not know whether they are rich or poor, educated or illiterate, sick or well, high-born or not. This device decouples our preferences from our circumstances; in other words, we are forced to choose how we want society to distribute goods without self-interest to guide us because we do not know what our “selves” are actually like. From this premise Rawls deduces that we would adopt a “maximin” perspective, i.e., we would collectively opt for a system where the worst possible outcome for any individual is comparatively generous. For the economy this would mean a welfare state with income guarantees and generous social benefits. The veil of ignorance device has been much criticized (as artificial and unrealistic) and defended (as a guide to disinterested deliberation). Our use of it here is for the limited purpose of illustrating that most people are unlikely to know what health care problems might befall them. Hence the veil of ignorance is a less abstract construct in the health domain than in most other life circumstances.

tools are the parts of the waiting list system. Do the parts sum to a coherent and acceptable whole? Will an acceptable version of distributive justice emerge “naturally” from separately developed tools and individually managed wait lists?

It would be a remarkable and happy circumstance if it did. It is difficult enough to get expert panels, system managers, and the public to agree on prioritization criteria, relative weights, and queuing processes for individual services or conditions. Creating a common language out of the diverse vocabularies and traditions of different disciplines and clinical fields is in itself a formidable challenge. Creating a single ranking scale out of the myriad of variables, weights, and assumptions that underlie the development of individual systems is a similarly monumental conceptual challenge. Moreover it in some ways seems artificial: comparing very unlike services, such as mental health counselling and trans-urethral resection of the prostate (TURP), seems intuitively unhelpful and in some senses, impossible. It seems at first glance unhelpful to view these services as competitors involving trade-offs; after all, they are delivered by different professionals to different patients in different places. But they are competitors in that in integrated health systems they compete, ultimately, for the same pool of health dollars.

Given these difficulties, why would we attempt cross-procedure prioritization? To begin with, the “uncharacterized” citizen would resist a system where different problems and needs of equal severity would create differential access to services. If, for instance, people with orthopedic problems got speedy service while those needing hernia repairs invariably got short shrift (few done, long waits), only under the discredited lottery approach would the results be considered fair. System integrity and the perception of fairness irrespective of circumstance are critical. Hence we must examine the likelihood that unconsolidated individual service prioritization processes would meet a number of criteria and tests for system integrity, such as:

- The cumulative burden<sup>8</sup> a person has to endure is more or less identical irrespective of service or procedure;
- The threshold for intervention is approximately the same for all services—i.e., there is a common understanding of when, all things considered, it is appropriate to intervene, taking into account suffering, risk, and prospect to benefit;
- But notwithstanding these criteria, those with minor but real needs have access.

A second reason to attempt cross-prioritization is that it appears far more feasible than one might assume. A number of dimensions of the burden of waiting apply to a wide range of conditions, e.g., pain, risk of deterioration, loss of function, impact on activities of daily living, etc. All point-count systems use sub-scales, many of which have been validated by a strong body of research. There are numerous similarities in the approaches taken by the 5 WCWL

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<sup>8</sup> “Burden” is in itself a tangled web because it subsumes many contributing factors, such as pain; loss of function; personal and family anxiety; ability to work or carry out leisure activities; etc. Even if perfectly calibrated and universally acceptable, it alone cannot determine priority rankings because at least two other dimensions are crucial. One is risk and the risk-benefit ratio. The risks inherent in some procedures for some people may be too high to justify the intervention, or sufficiently high to deter either the patient or the provider from acting. The other is prospect to benefit. If the likelihood of benefit is small despite the enormity of the condition, either the system or the individual(s) involved—or both—might reasonably assign a lower priority rating. These situations are cleanest when risks are simply too high, and/or expected benefit approaches zero. If either circumstance obtains, the person would be ineligible for the service and prioritization is not an issue. These non-problematic cases are not the norm, and we are left to grapple with the large gray zones of probabilities and approximations. Factoring in variables such as cost and affordability and the equation is even more complex.

project panels and in the New Zealand experience. While it may be impossible to achieve perfect comparability, it is without question possible to establish a much more robust and transparent framework than currently exists. In a sense a cross-prioritization system operates much like a properly applied clinical practice guideline: it incorporates the best available evidence; it standardizes a number of key elements of diagnosis or treatment; it narrows unjustifiable variations in practice; it neither claims omniscience nor demands unwavering adherence in all circumstances; and it augments but does not replace clinical judgment.

There are thus good reasons for developing a cross-prioritization system and cause for optimism about the prospects for succeeding on methodological grounds. Before proceeding it is instructive to examine how successfully single-focus or partial wait list management systems have achieved both their specific objectives, and the broader goal of distributive justice.

#### **IV. HOW WELL DOES “MUDDLING THROUGH” PERFORM?**

How well do implicit and non-standardized prioritization systems perform? There are no Canadian examples of systems of care where even a significant minority of services and procedures are prioritized using formal and substantive processes (Sanmartin et al, 2000; McDonald et al, 1998). Other than for life-threatening conditions such as heart failure and cancer, waiting lists in Canada have been essentially unorganized, the main criterion being chronological order of booking. Predictably, among other things this has resulted in very large variations in practice (Goel, Williams and Anderson 1996) that in turn suggest, absent other justification, very different thresholds of intervention. Note that these variations occur *within* procedures; it is a certainty that there are similar or greater variations across procedures if only we knew what and how to measure.

In addition, there are no benchmarks for determining how many procedures should be provided to a given population in a given time period. The variations in rates of interventions from region to region is often a function of how many providers there are (Lavis et al, 1998) For some procedures there appears to be little public concern expressed about long waits in what may be dire circumstances, while for others the dissatisfaction appears widespread. Jurisdictions with very high rates of utilization often have very long waiting lists and in some cases lengthy wait times (HSURC, 1995).

Where we do have more systematic data on wait times—most recently in Manitoba (DeCoster et al, 1998, 2000) and Nova Scotia (Nova Scotia Department of Health, 1996)—we do see both a clustering of wait times for most people, and some outliers. However, the data do not include burden of suffering, appropriateness, or other more substantive measures of the consequence of waiting and the fairness of the system. If the intervention thresholds and burdens of suffering are different among the various procedures and services, then the clustering of wait times suggests unfairness rather than proof of “natural” justice emerging from an unmanaged series of events. Since specialized personnel are unevenly distributed; intervention rates tend to reflect this distribution; and for non-urgent cases the date of booking rather than comparative assessment of need rank-orders the queue, it is close to certain that the current system fails the modest tests proposed above. Indeed, a study of cardiac surgery wait list in the UK showed substantial “false positives” (procedure done earlier than necessary) and “false negatives” (procedure inappropriately delayed):

A comparison of patients' actual waiting times with an appropriate waiting time, defined by the urgency score, showed that only 38% were treated within the appropriate period. Thirty-four per cent were treated earlier than their ischaemic risk indicated, and 28% with high ischaemic risk were delayed. (Langham et al, 1997)

### ***The Unintended Consequences of Partial Improvements***

Waiting lists are increasingly viewed as indicators or measure of access to health care services. Long lists and waits for services are interpreted as barriers to care and as evidence that the health care system is unable to ensure reasonable access to health care services (Amoko, 1990; Coyte et al., 1994; Khan & Bhadwaj, 1994; Buske, 1997; CMA, 1999). Many argue that this is a direct result of inadequate resources or the misallocation of fixed resources within the system (Goldacre et al., 1987; Baume, 1995; McDonald et al., 1998). As a result, waiting lists are often viewed as a mechanism to allocate resources so that procedure or specialty groups experiencing these barriers receive the necessary funds to increase the number of services provided thus reducing waits for care. This strategy has been adopted in Canada at both the provincial and institutional or hospital level where resources are allocated within and/or across procedure groups competing for limited resources (McDonald et al., 1998)

Waiting list management policies introduced for specific procedures or conditions have wider-reaching effects on access to services and resource allocation. Policies introduced to address lengthy queues and waits affect not only the patients in the targeted queues, but also those not covered by the policies. Experiences in Canada and abroad provide some insight regarding the effects of various waiting list management policies on: (a) access to care for patients, and (b) resource allocation within the system. In many cases, both effects occur.

After struggling for years with lengthy waits, the Department of Health in the UK introduced several policies to reduce lengthy waits (i.e. > 2yrs) for care. In 1987, the *Waiting List Initiative* was introduced to provide additional funding to health authorities and hospitals that proposed innovative strategies to reduce lengthy waits. The initiatives included waiting list audits, establishing temporary clinics and extending the operating hours of existing clinics (Newton et al., 1995). In 1992, the government introduced the *Patient Charter* in part to establish waiting time guarantees. The Charter effectively guaranteed patients access to hospital-based services within 2 years (amended in 1995 to 18 months) of being placed on the waiting list. Furthermore, patients were also assured that surgery will not be cancelled the day prior to a scheduled surgery nor after admission to hospital (NHS, 1995).

Despite limited evidence, the policies appear to have reduced lengthy waits in the short-term (Thomas et al, 1989; Lee et al, 1992; Mackinnon et al, 1992; Parmar, 1993; Harvey et al, 1993; Mobb et al., 1994). Following the introduction of these policies, the number of patients waiting more than 2 years decreased dramatically over the short term, but the number of patients waiting less than 2 years increased (Dept of Health, 1998). Hence some gains may have come at the expense of patients waiting less than 2 years. Concerns were raised that additional funding provided to support the policies resulted in reduced access for those not covered by these initiatives (Yates, 1991; Appleby, 1993; Umeh et al, 1994).

In many systems decision-makers routinely must decide which procedure or specialty groups require policy action to address waiting list problems. In Canada, provincial Ministries of Health have allocated additional funding to increase volumes and reduce wait times in areas such as orthopaedic surgery, cardiac surgery and diagnostic tests (Ontario Ministry of Health, 1997; British Columbia Ministry of Health, 1997; Manitoba Health, 1997). Often only limited information for some, but not all service areas is available to inform decisions about targeting resources. As has been the case elsewhere, this approach has on occasion reduced waiting lists in the short-term by eliminating bottlenecks in the system. But there is no information on how these initiatives have affected access to the non-targeted services.

Sweden adopted a more systematic approach to determine where efforts to reduce wait times should be focussed. In 1992, like the UK, the Swedish government and the Federation of County Councils introduced a waiting time guarantee for selected procedures. The procedures selected met the following waiting time and appropriateness criteria: (1) waiting created a problem; (2) the treatment method is well established; (3) results are measurable; and (4) the clinical benefit is high. Twelve procedures were selected including hip and knee replacement, cardiac surgery and cataract removal. The guarantee covered only urgent and emergent cases meeting procedure-specific criteria. The policy was supported, in its first year, by additional grants available to hospitals to meet the guarantee. Limited evidence suggests that the policy was successful in reducing waiting lists in the short-term but list sizes and waiting times increased following the first year of the policy when additional funds were no longer available (Hanning et al, 1996, 1998; Lundstrom et al, 1996). Access to services clearly improved for patients covered by the guarantee when additional funding was made available to hospitals. However, the effects of access on services and patients not covered by the guarantee are not known. These patients, like all patients following the decline in targeted funding, may have experienced increases in waiting times due to this policy. Where there are finite physical resources such as operating room theatres operating at maximum capacity, increasing the supply in the targeted areas logically requires reducing the supply elsewhere.

#### **IV. CROSS-PRIORITIZATION: LESSONS FROM OTHER DOMAINS?**

As discussed above, in a public system there are strong philosophical arguments for prioritizing all people awaiting procedures according to some common metric to ensure that access is equitable. The empirical evidence suggests that absent a common system applicable across services and procedures, the likelihood of imbalances and inequities developing over time is very high. Among the reasons for this are:

1. Practice cultures and thresholds for intervening can change imperceptibly but significantly over time, and these changes are likely to differ in magnitude in different practice domains. Technological change may suggest a new standard of service in some areas but not others, irrespective of impact on the prospect to benefit or cost-effectiveness.
2. The supply of personnel will almost certainly influence the volumes and rates of interventions unless there is an explicit strategy to control variations. Health human resource planning is an inexact science and variations in the supply of personnel can and do arise frequently.

3. Where non-financial resource availability is relatively inelastic (e.g., a fixed number of operating theatres, system-wide shortages of nurses and technicians), it may not be possible to increase supply in the short term to correspond to greater identified need.
4. Some areas without a cohesive and powerful advocacy group (provider and/or public and/or board) may be disadvantaged and ultimately unsuccessful in the competition for resources.

However, even if it is desirable to have a common metric for assessing the needs and prospects of everyone waiting for anything, it may not be practical or achievable. Among the foreseeable practical issues are:

1. The circumstances of those waiting for some services are so different from those waiting for others that both the variables used to establish a score and their relative weights would be entirely incommensurate. For example, waiting in some cases involves suffering but no risk of death (e.g., knee replacement), while in other cases there is minimal suffering but major risk (e.g., early stage cancer treatment). Moreover, in some cases neither clinical scores nor time waiting predicts the likelihood of adverse events occurring while waiting (Jackson, Dooge and Elliot, 1999).
2. Moving resources to one area from another quickly is much more difficult in practice than in theory. For instance, cutting back on orthopedic surgery to augment children's mental health would almost invariably involve resource reallocation across what are now major budgetary barriers or silos. Union agreements, contracts with providers, and other system features make rapid change difficult, and all systems need some stability and predictability in the workforce and workplace.
3. The validation of the explicit point-count systems consists of comparing the scores to visual analogue scales, which are composite, unarticulated, non-explicit and subjective measures. Since there is no objective gold standard for measurement this may be the best we can do at the outset.<sup>9</sup> Whether similar scores derived from very different variables and weights would in fact result in agreement on cross-domain priority order is open to question.
4. As discussed above, even a transparent and acceptable "one big list" approach would have to accommodate and serve those whose needs are real but unlikely to generate a score high enough to warrant service (because there will always be higher scores coming into the system).

Yet precisely these conditions describe at least two other domains—one health, one health-related—that have created single-list systems for ranking and making decisions about seemingly dissimilar entities. Neither precisely mimics the complexities involved in waiting for services and procedures, but there are lessons to be learned from each.

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<sup>9</sup> At least for the foreseeable future. There are objective and validated subscales for measuring pain, functional limitation, self-reported health, etc. and over time, with large enough data sets the relationships among need, wait time, quality of life, burden of suffering, and outcome should become clearer and more robustly established statistically. If this precision emerges, the VAS will be supplanted by a more transparent set of measurements.

### *Lessons from Long Term Care*

Depending on the jurisdiction, long term care a decade or so ago was a fragmented, multi-entry system with major wait list problems. Typically nursing homes kept their own wait lists and admitted (or refused to admit) residents according to various criteria. Some had standardized and validated assessment instruments while others did not. There may have been systematic approaches to assessing and prioritizing those awaiting advanced (often called extended or chronic hospital) care but little or no oversight of applications for lighter levels of care. It was prudent for facilities to have long waiting lists to ensure a steady supply of people willing to move into a vacated bed. Funding systems usually allocated a fixed dollar amount per bed for each level of care. Since there could be considerable variation in service needs and costs within levels of care, there were incentives to vary the mix of clientele. There were variations in admitting practice: some facilities would resist taking people with severe cognitive impairment or heavy physical needs (sometimes for valid reasons such as an aging physical plant or an absence of dedicated units). A facility with a large number of relatively high needs clients might feel compelled to admit less needy people within the same level of care to avoid overburdening the staff or financial trouble. Many had a religious and/or ethnic orientation that created self-selected groupings or an additional *de facto* prioritization criterion.

Observers of this non-system noted many aspects similar to the dilemmas encountered in diagnostic, medical, and surgical areas. Each facility believed that it had a good priority system, even if non-explicit, that responded to the needs of its clientele. There was resistance to adopting a common assessment tool because it was bureaucratic, overly centralized, time-consuming, costly, unattuned to the non-quantifiable needs of prospective residents, etc. There was a huge commitment to resident choice: the state shouldn't decree who got in where. If there were long wait lists and times, the solution was more beds. In some cases those with the most severe needs were difficult to place while others with far lesser needs got admitted, the rationale being that the high needs people couldn't properly be looked after, would be too disruptive of the general resident population, etc.

Over time, as health systems regionalized, home care programs expanded, and evaluations revealed unfairness, policies to transform the system emerged. Again many different experiences could be cited, but in general, here is what has taken place:

1. There is a common assessment system using a validated tool—often OARS (Dobel and Fisher, 1997), RUGS (Botz et al, 1993) or MDS-InterRAI (Hirdes et al, 1999). These tools assess physical, cognitive, functional, and environmental status using validated subscales and the total score establishes level of need and priority order.
2. The process applies to people with very different characteristics and needs, risk levels, family support availability, etc. In some cases the differences may not be as large as that between a child with behavioural problems awaiting counselling and an elderly person with persistent headaches awaiting an MRI, but they are nonetheless considerable.
3. Assessments are usually done by a trained corps of assessors independent of the facilities to ensure expertise and consistency in applying the tools and to avoid conflict-of-interest.
4. Applicants list their facility of choice and alternatives but the placement system is centralized. People are admitted in order of need. If a bed in their preferred facility is

unavailable they can take the vacant bed and then transfer, or defer admission. If they defer, their priority status typically drops.

5. Funding follows the residents and depending on the system used and its sophistication, the level of funding for a facility could increase or decrease in response to the characteristics of its total resident population.

The impact of these changes has varied by jurisdiction, but some very positive outcomes have been documented. In some wait lists and times dropped dramatically,<sup>10</sup> for three reasons. First, many were previously double and triple counted; since homes kept their own lists, it was prudent to apply to several to maximize the pool of available beds when one's time came. Second, the practice of getting on a list long before there was real need for a bed—another artifact of the non-managed system—ended, segmenting out the anticipatory demand (often by years) from the real need. Third, the assessment process was often linked to home care, and nursing homes came to be viewed as the solution of last resort, to be used only after community and housing options had been exhausted. Perhaps even more crucially from the standpoint of distributive justice, the number of people with high needs languishing on wait lists while others with lesser needs were admitted dropped precipitously.

Long term residential care typically deals with elderly people with significant disability, requiring special housing, and services ranging from nursing to special diets. In this the queue resembles a within-service (cataract surgery) or within-service-cluster (ophthalmological surgery) list. But in other respects the long term care lists contain very dissimilar clientele: some with severe cognitive and behavioural impairment, others on ventilators but cognitively unimpaired, young adults with brain injuries, the mentally handicapped. Additionally, assessed people may be directed to facility care or community care, which adds a dimension of choice and complexity to the process. Thus there are both within-service and cross-procedural lessons to be learned from the long term care domain.

### *Lessons from Research Granting Agencies*

In June 2000, the Canadian Institutes of Health Research were officially launched, replacing the Medical Research Council and incorporating the policy-oriented research activities of the National Health Research and Development of Health Canada. The CIHR has a very broad mandate to support research ranging from basic science to population health, in settings as varied as the wet laboratory and the street. While it has received substantial new funding and is slated to grow even faster in the next few years, demand, in the form of worthy grant applications, exceeds supply. Hence the peer review process has two main functions: to assess whether applications are worthy of funding (akin to appropriateness); and to rank them in the proper order (akin to ordering the queue).<sup>11</sup>

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<sup>10</sup> In Saskatoon, a city with a long term care catchment area population of about 200,000, there were 1600 on lists at the beginning of the 1990s, prior to implementing a mandatory assessment and placement system for publicly funded facilities. By the latter part of the decade the number had dropped to well under 100. People on the list for priority admission—akin to urgent or emergent—often had waits of a week or sometimes less. These numbers began to grow at the end of the last decade and there is currently perceived to be a real shortage. Now, however, the debate about bed numbers is informed by accurate and transparent data.

<sup>11</sup> The analogy is not exact. Those applications that score high enough to be funded are all funded at once; there is no waiting time difference between the first-ranked and the last above the cutoff line. Those below the funded line are in a sense wait-listed to the next competition, where, assuming applicants resubmit, they are reassessed and



Proposals to the CIHR are assigned to peer review committees expert in the subject matter. (Applicants suggest the committee to which they would like the proposal referred but the Council can reassign them.) Hence there are committees for health policy and systems management research; genetics; biochemistry and molecular biology, etc. The disparity in subject matter is enormous, as are the methods of inquiry, from randomized controlled clinical trials, to quantitative analysis of large administrative datasets, to capital-intensive examination of cellular and molecular structures, to qualitative investigation of psychological, social, and cultural attributes of health and illness.

Each committee adjudicates proposals that are part of a scientific culture and tradition, and all committee members are more or less fully aware of the history, methods, achievements, areas of strength, and giants in the field. In some cases the cultures are paradigmatically similar, e.g., in the various committees dealing with the basic biological sciences. Their differences are roughly similar to those between, say, hip replacement and cataract surgery. In others the cultures and traditions have almost nothing in common, e.g., genetics vs. health policy and systems management research, and the gulf is arguably larger than that between, say, general surgery and children's mental health. In health care, all interventions are united by a desire to improve health status. In research, some studies are directly intended to improve the health of individuals, while others are intended to illuminate the impact of policy and still others deal with populations. The worlds of health research are at least as diverse in intent, perspective, and method as the worlds of health care—likely moreso.

Given the vastness of the research terrain and the distinctness of the purposes, cultures, and communities, one might expect that the CIHR would divide up its grant budget among the various committees, which would then rank their applications for funding purposes. The allocation would presumably incorporate criteria such as number of researchers in the field, developmental needs in certain areas, relative costliness of doing studies, etc. The assessment processes for each would be tailored to the nature of the inquiry, the methodological orientation of the field, and the state of Canadian research in an international context. In its policy-making and oversight capacity the CIHR might track the distribution of funds among fields and committees and intervene in areas where capacity seems lacking, or the quality of the research deviates significantly from the national norm.

In fact, neither the budget allocation process nor the peer review is so fragmented. All committees use a standard point-count system (0 to 5) with category descriptions (4.5-4.9 being highest, etc.). The scores and rankings from all committees are then pooled, and grants are funded down to a cut-off line determined by the grouped scores and the amount of funding available. If the cut-off score is, say, 3.91, the last grant funded may be from the behavioural sciences committee and the 3.90 from the biochemistry and molecular biology committee would not be funded. There is provision for some adjustment after-the-fact if a committee has unusually low scores or a lower proportion than “expected” in the fundable range. But the principle is clear: the same point-count system should apply to all proposals, and the idea of excellence should be standardized despite the differences in the nature and methods of research. A score of 4.5 in biochemistry should represent the same level of excellence as a 4.5 score in health services research. To be sure, there are ongoing cross-committee discussions of peer

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rescored. The “condition” of their grants may have changed if applicants have revised on their own and/or in response to the reviewers' comments.

review and efforts to ensure that raters use the scales and descriptors in the same way. Some have argued that the scoring system works less well for some types of proposals than for others. Some areas, notably the social sciences in earlier years, perceived that it was more difficult to obtain a high score because of the inherent difficulty and “messiness” of studies. But over time the system has appeared to gain widespread acceptance across areas of research, and perhaps even more significantly, committees seem to calibrate themselves quite similarly. More to the point, it is decisive.

Peer review, like patient needs assessment, is an imprecise combination of art and science, and the gold standard of outcomes is unavailable until after the decisions have been made. The consequences of error in the clinical setting are more immediate and tangible than in the research setting: no one dies if a project isn't funded.<sup>12</sup> For our purposes here it is sufficient to demonstrate that it is indeed possible to apply a point-count system across widely disparate entities that form an implicit queue, with at least the assent, and often the full support, of disparate communities with diffuse needs.

## V. CONCLUSION

Starting the journey of developing single-service prioritization tools requires that the journey be completed on a system-wide basis. It is difficult but inescapable to develop scoring and prioritization tools for all patients awaiting health care services and procedures once initial efforts have proved successful within narrower parts of the system. There will be difficulties in arriving at consensus on the features of the scores and there will be variables in some circumstances that do not apply to others. The greater the transparency of how the system works and its implications, the greater will be the clamour for standardization.

Both distributive justice and managing resources in complex, multi-service, multi-sector health organizations demand such standardization. The technical difficulties will be significant, and achieving the best possible system will not solve all problems. Probabilities will not become certainties, although confidence intervals will become tighter. Deciding on cost-benefit ratio thresholds will remain value-laden and at times, fractious. Deciding when to exempt people from the common pool (e.g., to ensure low-level but real needs are met) will often be contentious. Once the point-count systems become part of the landscape, discussions about acceptable risk or burden of suffering will become more concrete and intense.

Ongoing conceptual debate and refinement will be essential. To take but one element, suppose it is agreed that, other things being equal, there should be an equal burden of suffering among all people in the queue. But what constitutes an equal burden of suffering? Are we concerned about the peak level of suffering (e.g., maximum pain experienced), or the average level of suffering over time? Are pain and functional scales linear or non-linear? Is the

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<sup>12</sup> But we should not understate the consequences of peer review error in health research. By definition peer review defines peers as those with a recognized track record of excellence and judgment. Most science is incremental and innovation is built on established concepts and methodologies. Hence most “peers” are likely to have matured within the boundaries of convention (which is not to say that these boundaries are rigid). There is likely to be greater capacity to assess and rank mainstream, incremental projects than dramatically creative, “out of the box” proposals. Competence is easier to identify than original greatness. Not funding what would have been a breakthrough project could affect future lives, and can have a serious immediate and perhaps permanent effect on the career of the unfunded.

experience of moderate pain for 4 months equivalent to severe pain for 2 months? One month? Does the temporary inability of a retired person to play golf equate to the temporary inability of a carpenter to go to work? These are nuances to be examined and there will be no algorithmic “right answers.” But nor should we overstate their seriousness: roughly similar scores will be considered equivalent, and people in the queues will fall into categories that are unlikely to make material distinctions between those with scores of 84 and those with 80.

As is usually the case in human progress, solving some problems merely raises and clarifies others that are even more challenging. In a sense the easy work (in theory if not in practice) is to leave behind the chaos and capriciousness of the existing haphazard system. The harder work will be to work out the nuances and fine tune future systems to avoid unintended consequences and to remain responsive to the needs of the public. Regardless of these complexities, once good tools are available, they cannot be uninvented. Their existence and increased use will create momentum for their refinement and extension in ever-increasing applications. Again, this is all to the good: just as health care data improve with use (and the revelation of their flaws), so, too will wait list tools improve once their current and potential value have been demonstrated.

The most compelling reason to complete this journey is to fulfill a publicly financed system’s motivating goal: the achievement of distributive justice. Systems that unintentionally or through lack of effort create different classes of entitlement based on health condition violate the needs-based foundation of universal health care. The development of individual tools in a number of domains will eventually reveal the inequities that are only suspected and anecdotally reported now. The possibility of valid and meaningful comparisons across domains will unmask the extent of the problem and demand a solution. Once a number of tools are developed and used, the absence of tools in other areas will become increasingly untenable. The information generated by the ongoing use of the tools will help increase the effectiveness of services; greatly reduce variations in access; advance discussions of value-for-money; and help create more meaningful service and access standards. Progress on these fronts will help not only those who wait for care, but also society at large in its resource allocation decisions.

## REFERENCES

- Amoko HA. Waiting List as Indicators of Inaccessibility to Surgical procedures in British Columbia. BCHA Discussion Paper, 1990.
- Appleby J. Waiting time go down, but waiting lists up. *BMJ* 1993; vol 306:479.
- Baume PE. Waiting times for non-urgent specialist appointments. *Medical J of Australia* 1995; vol 162: 648-649.
- Botz CK, Bestard S, Demaray M, Molloy G. Resource utilization groups (RUGs): defining chronic care, rehabilitation and nursing home case mix in Canada. *Healthcare Management Forum* 1993;6:5-19.
- British Columbia Ministry of Health. Waiting List Report. Ministry of Health and Ministry Responsible for Seniors. Victoria, 1997.
- Buske L. Public attitudes on access to service. *CMAJ* 1997; 156(11):1680.
- Campbell A. Ethics Workshops: Public Participation in Discussing Ethical Issues in Defining Core Services. Dunedin: Bioethics Research Centre 1994.
- Canadian Medical Association. Access to Health Care in Canada Report. Ottawa: Canadian Medical Association, 1999.
- Coyte PC, Wright JG, Hawker GA, Bombardier C, Dittus RS, Paul JE, Freund DA, Ho E. Waiting times for knee-replacement surgery in the US and Ontario. *NEJM* 1994;331:1068-1071.
- DeCoster C, Carriere KC, Peterson S, Walld R, MacWilliam L. Surgical waiting times in Manitoba. Winnipeg: Manitoba Centre for Health Policy and Evaluation, 1998.
- DeCoster C, MacWilliam L, Walld R. Waiting times for surgery: 1997/98 and 1998/99 update. Winnipeg: Manitoba Centre for Health Policy and Evaluation, 2000.
- Department of Health. Country Report: The United Kingdom. Finance and Performance Directorate, NHS Executive Headquarters, Department of Health. England, 1998.
- Doble SE and Fisher AG. The dimensionality and validity of the Older Americans Resources and Services (OARS) Activities of Daily Living (ADL) Scale. *Journal of Outcome Measurement* 1998;2:4-24.
- Evans D and Price R. Ethical dimensions of the national waiting time project. Dunedin: Bioethics Centre, Dunedin School of Medicine, University of Otago, 1999.
- Frankel S, Ebrahim S, Davey Smith G. The limits to demand for health care. *BMJ* 2000;321:40-5.
- Goel V, Williams JI, Anderson GM et al (eds). Practice Atlas of Ontario, 2nd edition. Ottawa: Canadian Medical Association, 1996.
- Goldacre MJ, Lee A, Don B. Waiting list statistics I: Relation between admissions from waiting list and length of waiting list. *BMJ* 1987;295:1105-1108.
- Hadorn DC, Holmes AC. The New Zealand priority criteria project. Part 1: Overview. *BMJ* 1997;314:131-134.

- Hanning M, Lundstrom M. Assessment of the maximum waiting time guarantee for cataract surgery: The case of Swedish Policy. *International J of Technology Assessment* 1998;14:180-193.
- Hanning M. Maximum waiting-time guarantee- an attempt to reduce waiting list size in Sweden. *Health Policy* 1996:17-35.
- Harvey I. And so to bed: Access to inpatient services. In: *Rationing and Rationality in the NHS*. Eds: S. Frankel and R. West. London: MacMillan, 1993.
- Health Services Utilization and Research Commission. Cataract Surgery in Saskatchewan. Saskatoon: HSURC, 1995 [www.hsunc.sk.ca/research\\_studies](http://www.hsunc.sk.ca/research_studies)
- Hirdes JP, Fries BE, Morris JN et al. Integrated health information systems based on the RAI/MDS series of instruments. *Healthcare Management Forum* 1999;12:30-40.
- Jackson NW, Doogue MP, Elliott JM. Priority points and cardiac events while waiting for coronary bypass surgery. *Heart* 1999;81:367-73.
- Khan AA, Bhardwaj SM. Access to health care: A conceptual framework and its relevance to health care planning. *Evaluation and the Health Professions* 1994;17:60-76.
- Langham S, Soljak M, Keogh B, Gill M, Thorogood M, Normand C. The cardiac waiting game: are patients prioritized on the basis of clinical need? *Health Serv Manage Res* 1997; 10:216-24.
- Lavis J et al. Trends in hospital use for mechanical neck and back problems in Ontario and the United States: discretionary care in different health care systems. *CMAJ* 1998;158:29-36.
- Lee N, Claridge K, Thompson G. Do we require initiatives to reduce ophthalmic outpatient waiting lists?. *Health Trends* 1992;24:30-34.
- Lundstrom M, Stevnei U, Thorburn W. Assessment of waiting time and priority setting by means of a national register. *International J of Technology Assessment in Health Care* 1996; 12:136-140.
- Mackinnon JG, Smith D, Dixon JH. A weekend orthopaedic initiative list scheme. *Annals of the Royal College of Surgeons of England* 1992;74:6-8.
- Manitoba Health. Waiting lists reduced for orthopaedic surgery. Press Release. October 27, 1997.
- Mark DB, Naylor CD, Hlatky MA, Califf RM, Topol EJ, Granger CB, Knight JD, Nelson CL, Lee KL, Clapp-Channing NE, et al. Use of medical resources and quality of life after acute myocardial infarction in Canada and the United States. *N Engl J Med* 1994 Oct 27;331:1130-5
- McDonald P, Shortt S, Sanmartin C, Barer M, Lewis S, Sheps S. Waiting lists and waiting times for health care in Canada: More management!! More Money?? Ottawa: Health Canada, 1998.
- Mobb GE, Pugh F, Peeling B. How long is your waiting list? Experience of a urological waiting list initiative. *Journal of the Royal Society of Medicine* 1994; vol 87;140-142.
- National Health Service. The Patient's Charter. London: Department of Health, 1995.
- Newman MF, Kirchner JL, Phillips-Bute B, Gaver V, Grocott H, Jones RH, Mark DB, Reves JG, Blumenthal JA. Longitudinal assessment of neurocognitive function after coronary-artery bypass surgery. *N Engl J Med* 2001;344:395-402.

- New Zealand. Reduced Waiting times for Public Hospitals: Elective Services. Government Strategy, March 2000.
- Newton JN, Henderson J, Goldacre MJ. Waiting list dynamics and the impact of earmarked funding. *BMJ* 1996;311:783-785.
- Nova Scotia Department of Health. Reporting health performance: Elective procedure waiting times in Nova Scotia 1992-1996. Halifax: 1996.
- Ontario Ministry of Health. Cardiac patients gain quicker access to services with \$5.2 million expansion. Press Release. December 3, 1997.
- Parmar JR. A waiting list initiative in general surgery: Experience in a large District General Hospital. *Annals of the Royal College of Surgeons of England* 1993;4-6.
- Pilote L, Bourassa MG, Bacon C, Bost J, Detre K, Mark DB, Pitt B, Reeder G, Rogers WJ, Ryan T, et al. Better functional status in American than Canadian patients with heart disease: an effect of medical care? *J Am Coll Cardiol* 1995;26:1115-20.
- Samartin C, Shortt S, Sheps S, Barer ML, Lewis S, McDonald P. Waiting for Medical Services in Canada: Lots of heat, little light. *CMAJ* 2000;162:1305-10.
- Sinclair JC, Cook RJ, Guyatt GH, Pauker SG, Cook DJ. When should an effective treatment be used? Derivation of the threshold number needed to treat and the minimum event rate for treatment. *J Clin Epidemiol* 2001;54:253-62.
- Thomas HF, Darvell RHJ, Hicks C. "Operation cataract": a means of reducing waiting lists for cataract operations. *BMJ* 1989;299:961-963.
- Tu JV, Pashos CL, Naylor CD, Chen E, Normand SL, Newhouse JP, McNeil BJ. Use of cardiac procedures and outcomes in elderly patients with myocardial infarction in the United States and Canada. *N Engl J Med* 1997;336:1500-5.
- Umeh HN, Faber RG, Reece-Smith H, Galland RB. Impact of a Waiting List Initiative on a general surgical waiting list. *Ann of Royal College of Surgeons of England (Suppl)* 1994;76:4-7.
- Yates J. Lies, damned lies and waiting lists. *BMJ* 1991;303: 802.