

COMMENTARY

[Commentaries on the article by Dr. Gross have been received from Drs. E.A. Latimer and R.N. Battista, Dr. C.J. Wright, Dr. L.C. Pelletier and Dr. R.Y. McMurtry. They are published here.]

Dr. Gross argues, in summary, that:

- “bulk buying” of surgical implants reduces the range of implants available so that the surgeon may not be able to find an appropriate implant for a particular patient;
- implants require implant-specific instruments. Reducing the range of available implants may require some surgeons to instal implants using instrumentation with which they are not comfortable. If inadequate training is provided, quality of care will suffer;
- bulk buying reduces the revenues of the implant maker, which in turn reduces the implant maker’s ability to evaluate the performance of the implants;
- the savings to be realized from bulk buying are small in relation to the total costs of surgery.

In short, Dr. Gross is asking whether efforts to reduce implant costs through bulk buying are likely to end up increasing rather than reducing total costs. This is a legitimate question.

Before we address Dr. Gross’s points directly, some clarification may be helpful. Bulk buying, or group purchasing, is likely to involve the hospital (a) choosing a limited number of manufacturers to purchase from and (b) trying to obtain the best possible price from each manufacturer, using one of a variety of mechanisms and quite possibly joining with other hospitals (who have selected the same vendor) to increase bargaining

power. For example, Partners Health Care in Boston (the name of the now merged Massachusetts General Hospital and Brigham and Women’s Hospital), one of the premier centres of orthopedic surgery in North America in volume as well as in reputation, recently reduced its number of vendors from 13 to only 4. The purchasing department was able, by asking for specific price reductions in the context of detailed contract negotiations, to achieve savings of more than US\$1 million in the first year (John Brennan, Orthopedic Implant Manager, Partners Health Care, Boston, Mass: personal communication, September 1996).

CONSEQUENCES OF REDUCING IMPLANTS AVAILABLE FOR APPROPRIATE MATCHING TO PATIENTS

The larger implant manufacturers produce a range of products suitable for virtually every type of patient. Clear compromises in implant quality and appropriateness would appear especially unlikely in the United States, where physicians are particularly vulnerable to lawsuits. At Partners Health Care, data showed that two-thirds of implants came from 4 manufacturers only. The range of high-quality products available from these 4 manufacturers alone was sufficient to satisfy almost all surgeons.

APPROPRIATE MATCHING OF INSTRUMENTS TO SURGEONS

The fact that many hospitals in the US do limit the number of manufacturers they purchase from suggests that surgeons can adapt to different types of instruments. The systematic discussion of alternative implants that the process of choosing a smaller number of manufacturers would fos-

ter could itself have some training value. Additional training, of course, can and should be arranged as necessary. Less training is needed overall with a smaller number of implants, and this could potentially increase quality.

REDUCTION IN THE ABILITY OF MANUFACTURERS TO EVALUATE IMPLANT OUTCOMES

Implant outcomes are commonly monitored by manufacturers. They could be better evaluated through multihospital, multimanufacturer databases. A database containing information on patient characteristics at the time of surgery, and implant characteristics and patient outcomes at various points after surgery, would allow statistical analysis of the relation between implant characteristics, patient characteristics and outcomes. The larger amount of data thus assembled would give more precise results. The assembly of such a database would require some government involvement.

SMALL SAVINGS IN RELATION TO TOTAL COSTS OF SURGERY

The savings from group purchasing go beyond a reduction in the price paid by the hospital for the implants. Ensuring that complete inventories of implants and instruments are maintained at all times requires more staff work if 10 manufacturers are involved than if only 3 or 4 are involved. (Inventories must be monitored almost daily if surgeons are to be able to select an implant while the patient is on the operating table.) Learning and instrument cleaning times are reduced, so that more operations can be scheduled. Incentives to reduce waste can also be negotiated with suppliers. For example, Partners Health Care pays for half of wasted implants, the manufac-

turer pays for the other half. Manufacturer initiatives such as additional training have resulted in a sharp reduction in waste (John Brennan: personal communication, 1996). Although implant costs account for only a fraction of the fully allocated hospital costs of the surgery, most of the latter costs are fixed. Reducing the number of implant manufacturers is one way to achieve a real cost reduction.

It may be added that the foregoing analysis does not take into account the long-term effects of price reductions on research and development in the implant industry. As Weisbrod¹ has pointed out, substantial investments in research and development in health care have been motivated by prospects of hefty profits. Reducing the profitability of orthopedic implants is likely to encourage the development of less costly implants. It may also discourage costly innovations, the long-term benefits of which cannot be demonstrated to cost-conscious pur-

chasers. But there are ways to encourage innovation. Partners Health Care, for example, has negotiated with its 4 suppliers that a small percentage of implants used be innovations not necessarily produced by them.

In conclusion, although there are certainly other ways to reduce the costs of orthopedic surgery (e.g., reducing nursing overtime through improved scheduling), group purchasing appears to be a benign way of achieving modest but real savings. There do not appear to be any real benefits, but there are real costs, for even a large hospital to rely on more than about 4 manufacturers. Additional analysis is needed to determine whether the number can advantageously be reduced below that. Price reductions can be negotiated in the context of detailed contracts that leave room for testing innovations and give manufacturers incentives to improve training and reduce waste. Furthermore, there would be significant advantages to de-

veloping a complete provincial, national or even international database of patient characteristics, implant characteristics and patient outcomes.

Eric A. Latimer, MD, PhD

Assistant Professor
Faculty of Medicine.
Associate Member
Department of Economics
McGill University
Montreal, Que.

Renaldo N. Battista, MD, ScD

Professor
Faculty of Medicine
McGill University.
President
Québec conseil d'évaluation des technologies de la santé

Reference

1. Weisbrod B. The health care quadrilemma: an essay on technological change, insurance, quality of care, and cost containment. *J Econ Lit* 1991;29:523-52.

Many surgeons share the concerns of Dr. Gross about the trend in operating-room management toward limiting the available inventory of sutures, staples, devices, prostheses and supplies in general. While acknowledging the need for efficiency, he is concerned that surgery has somehow been singled out for attention, and he raises the potentially serious issues of ethics and quality patient care. These are important concerns that must be addressed in developing all the tools of efficiency, including bulk purchasing, clinical practice guidelines, care maps or any other process that involves consensus development rather than individual freedom in clinical practice. We must deal with the concerns rather than use them as a deter-

rent to pursuing sensible efficiency measures. Let us examine in more detail the issues raised by Dr. Gross.

ARE SURGICAL SERVICES INAPPROPRIATELY TARGETED?

There is no question that elective surgery has come under increasing scrutiny because of cost constraints, but it would be difficult to claim that it has been hit inequitably. Resource restrictions have significantly affected all services, and in many hospitals the internists on call now have serious difficulty in dealing with the multitude of general medical problems that constitute much of any general hospital's urgent and emergency business. *Elective* medical admissions are becoming

part of the historic folklore of a bygone era. As with medical patients, the large volume of surgical emergencies continues to be handled as a priority, but it would be very difficult to argue that elective surgical procedures should displace the treatment of patients who have pneumonia or myocardial infarction.

It is interesting that Dr. Gross raises the issue of priorities in his first paragraph but does not adequately explore the problem. With unlimited resources, we need no further debate on this subject. However, if we decide to deal with the real world in which all resources are limited, then making choices and setting priorities are essential activities. It has only seemed otherwise in health care be-

cause of the long period of unfettered growth from which we are currently emerging. This period is over. Moreover, whether we like it or not (and I recognize that many physicians do not), this discussion must be confined to the context of single-payer publicly funded health care, as Canadians have strongly and repeatedly stated their commitment to this system.

Most of the high-volume, high-cost procedures within elective surgery are highly judgemental in terms of indications, for example prostatectomy, hysterectomy, lens replacement, hip and knee replacement, and even coronary artery bypass grafting. To expand on the example of joint replacement surgery, it has brought enormous relief to many patients but highlights the need for choice and prioritization. At what point in the continuous spectrum ranging from minor hip discomfort to severe pain and disability does a joint replacement become "necessary"? As with all judgemental surgical procedures, the decision is easy at the extremes, but somewhere in the middle in addition to the strict medical indications, the availability of resources and surgeon preference become important factors — witness the wide variation in the rate of joint replacement and many other surgical rates across the country. In British Columbia, for example, there are geographic areas where people have rates of elective surgical procedures 10 times the rate in other areas, even when the data are corrected for age, sex and location of the service provided. On the other hand, if we examine the different geographic rates of procedures that are subject to very little judgement, for example major colonic resection or internal fixation for fractured femur, there is little variation anywhere.¹ The Institute for Clinical Evaluative

Sciences (ICES) has published similar data for Ontario.²

No, Dr. Gross, surgery is not being singled out inappropriately. The fact is that we are now asked to demonstrate why so many different prostheses are in use and why the indications for so many elective procedures should be so variable from area to area and from surgeon to surgeon. It is astonishing that we have escaped this scrutiny for so long.

CONSENSUS GUIDELINES FOR MEDICAL AND SURGICAL SUPPLIES AND DRUGS

The other major issue that Dr. Gross has raised is of limiting the choices available to individual surgeons by developing consensus guidelines or protocols for standard practice. I agree wholeheartedly that "There are some inherent dangers in this approach if the exercise is reduced purely to the cost per unit and is not seen in a wider context."

First, such guidelines are not developed by accountants or administrators but by specialists themselves in the field. The administrative request is for the surgeons to get together to determine if a smaller range of materials can be specified to meet their needs and the quality care requirements of their patients, and the answer is almost always positive. Second, we have learned that a department with 12 members really does not need 12 different but approximately equivalent regimens for perioperative antibiotic therapy, nor does an orthopedic operating room need an inventory that includes every size of every prosthesis known to the industry. Let us be clear that this is as much a quality as a cost issue. In the wide context, we must bring into this discussion a subject to which physicians in the past have paid very little

attention, namely opportunity cost. Simply stated, opportunity cost refers to the services that are given up when resources are used in the particular manner chosen. Following protocols and reducing or eliminating variation helps to bring some comfort about the serious ethical implications of unnecessarily using resources that are then unavailable for another need. As Dr. Gross states, it is not ethical to use a cheaper implant that gets worse results, but it is not only ethical but highly appropriate to use a cheaper implant that gets equivalent and acceptable results.

AVAILABILITY OF INFORMATION ON BUDGETS AND COSTS

I agree completely that surgeons deserve to be able to work in a transparent budgetary process. In fact, only then can they begin to appreciate the enormous resource allocation decisions that must be made among competing programs that are all very important when viewed independently. Large sums of money currently allocated to reconstructive orthopedic surgery, for example, are justifiable in view of the public demand and the good outcomes, but efficiency demands bulk purchase agreements and consistency in the use of materials.

THE BALANCE BETWEEN INDIVIDUAL CHOICE AND CONSENSUS GUIDELINES

Surgeons and their representatives do indeed have an ethical obligation to act in their patients' best interests, but it is naive to suggest that this can ever be done in isolation from the realities of the world in which we live. The bigger picture includes the fact that many potentially useful treatments and social policies are not pur-

sued for lack of funding; that no health care system could ever provide every potentially useful service to everybody, always, regardless of how small the benefit and how large the cost; that choices must be made. Aye, there's the rub! Perhaps the absolute "best" and most expensive prosthesis must be denied if it means that more patients can be appropriately treated using a less expensive but perfectly acceptable one.

Those responsible for making the decisions about resource allocation simply cannot adopt the ostrich approach on the larger questions. We

have managed in Canada to maintain professional judgement, but we still must exhibit common sense within the freedom we enjoy. Choosing a best consensus antibiotic or hip prosthesis, or care map, involves compromise but makes clinical and economic sense. Such choices are ethical, responsible and necessary.

Charles J. Wright, MB, MSc

Director

Clinical Epidemiology & Evaluation
Vancouver Hospital and Health Sciences
Centre.

Clinical Professor

Department of Health Care and

Epidemiology
University of British Columbia
Vancouver, BC

References

1. *Population utilization and referral rates for easy comparative tables (Purrfect) version 2.5 [CD-ROM]*. Victoria (BC): British Columbia Ministry of Health; 1997.
2. Naylor CD, Anderson GM, Goel V, editors. *Patterns of health care in Ontario. ICES practice atlas*. Ottawa: The Canadian Medical Association; 1994. chapter 5.

Traditionally, the relationship between physician and patient has been on a 1:1 basis. The patient was paying the bill and the physician owed the patient full dedication and attention in providing health care. Those who could not afford the fees appealed to the physician's sense of duty and generosity, and the physician cared for them without any reward. In this modern and not so simple world, and particularly with the advent of third-party payers for health care, be it insurance agencies or governments, the privileged patient-physician relationship on a strictly individual basis is challenged. Physicians, in taking care of the sick, cannot forget or neglect their social duty. Formerly, they did so by honoring the Hippocratic Oath in the care of those who could not pay. Today, in Canada, the state has taken over the responsibility for the delivery of health care and secures all costs. This new reality cannot be ignored.

In his paper, Dr. Gross discusses the issue of the cost of surgical devices and supplies in regard to the surgeon's obligation to act in the best interest of the patient. He takes the stand that "surgeon is responsible for the choice

of implant and the consequences of that choice." Although this is absolutely true both ethically and legally, we must not forget that physicians also have a responsibility and duty of optimal utilization of resources over which they have control as a result of their social contract with society. This must not deter the physician from providing services of the highest quality, but this is only one side of the equation, the other being at the lowest possible cost. This is the new paradigm that applies not only to private enterprises in order for them to remain competitive but also to public organizations so that they can continue to provide services at a cost that society can afford, without hampering public finances. Unfortunately, the medical community as a group has not yet been very aware of or sensitive to this aspect of medical practice.

The fundamental issue comes down to the following questions: Since in our society neither the patient nor the physician pays the expenses generated by the use of devices and supplies, can absolute individual freedom of choice be granted to physicians, based on their own preferences, as Gross seems to propose? Or, on the

other hand, is it acceptable that physicians be dictated choices made by others, strictly on the basis of cost, not taking into account the ultimate benefit of the patient? The answer to that dilemma is: get involved and participate in the debate and in the decision-making process!

In a cost study performed in my department at the Montreal Heart Institute, it was found that for the same surgical procedure in similar patients and with comparable outcomes, there were differences between surgeons of up to 38% in the cost of surgical supplies, laboratory tests and drug prescriptions and of 26% in the average length of postoperative hospital stay. For our small department of surgery with only 8 surgeons at the time, such differences meant excess costs averaging \$375 per patient or a potential saving of over \$500 000 annually in supplies, tests and drugs, and the possibility of treating 25% more patients or doing 350 additional operations with the same hospital and surgical facilities. Discussions with members of our department resulted in an average decrease of 18% in the cost of these items and of 28% in the average patient stay postoperatively, within 1

year. This observation demonstrates that with hard data it is possible to change attitudes of physicians in regard to their treatment choices and habits. Refusal to take costs into consideration is most often the result of not being aware of this factor and of what it may represent in the end.

The attitude of the medical community has always been defensive whenever changes were proposed in the delivery of health care. Let us remember the negative reaction to the introduction of the health insurance program in 1970, culminating in the strike of physicians in Quebec. Twenty-six years later, physicians are among the fiercest advocates of the Canadian health care system. Because of costs spiralling in later years, several options have been looked at in order to limit health care expenses to a more acceptable level in regard to our total wealth, which is measured in terms of annual gross national product, and physicians will be faced with a profound mutation of the system if it is to survive. Rather than oppose and fight necessary changes, it would be more appropriate for physicians to become agents of change and put forward constructive solutions. The possibility of participating in the re-engineering of the health care system should be viewed by physicians as an opportunity to have a major impact on its future and a significant influence on the changes that are to be implemented.

If one believes, as Gross does, that

the choice of devices and surgical supplies should not be imposed on physicians, then our stand should not be denial of the problem or refusal to change but rather participation and leadership in the decision-making process. Bulk buying offers obvious advantages in terms of costs. Gross contends that when it is instituted, it prevents the process of choice based on performance characteristics of the product that would best fit the particular patient's need. What, then, if surgeons as a group would decide on the devices that should be available in the best interest of the patient? Is it necessary to have all medical devices available on the shelves, just in case? Or is it not possible that all surgeons involved develop a consensus to choose a single device with the optimal characteristics in regard to the needs of most patients and offering the best cost:quality ratio? A good example in my field of practice, is the choice of heart valve prostheses. A wide variety is available on the market. Absolute liberty of choice would probably mean 5 or 6 different prostheses on the shelf. An imposed selection would lead most probably to only 1 type of prosthesis being available, either mechanical or biological, which obviously would not meet the requirements of all patients. The acceptable solution is a decision reached by the surgeons themselves to confine their choice as a group to only 2 prostheses, 1 biological and 1 mechanical,

based on a comprehensive evaluation of all significant factors. Does this approach satisfy everyone? Probably not, but it gives a powerful bargaining power that otherwise would not be possible, while satisfying the needs of the patients and the desires of most surgeons. Needless to say, such a decision has to be re-evaluated periodically. In Quebec, this approach has been used for several years, and as a result it is now well known, if not yet fully accepted by industry, that manufacturers have to offer the best prices if they want to maintain their business in this very price-sensitive market.

Notwithstanding their duty to the patient, physicians cannot forget their social responsibility, which includes the cost of health care. The current trend to reducing costs of supplies and treatments and the length of hospital stay is irreversible. Developing cost-consciousness among physicians, standardization of processes and modes of practice, ongoing evaluation of patient management, practice guidelines and practice review committees will play an increasing role in everyday medical practice. We, as physicians, might as well take a leadership position in the process rather than merely wait for others to impose their own choices on us.

L. Conrad Pelletier, MD, MBA

Department of Surgery
Montreal Heart Institute
Université de Montréal
Montreal, Que.

The article by Gross is very topical, and he is to be commended for bringing the issue of ethical allocation of resources to the attention of his colleagues and readers of the *Canadian Journal of Surgery*.

The core of his argument relates to the practice of bulk purchasing schemes by hospital administrations.

When applied to the area of major joint replacement, Dr. Gross identifies ethical peril. In particular, he argues that such practices create a number of problems, among which are:

- insensitivity to individual patient requirements;
- indifference of individual sur-

geon's skills and training;

- failure to consider resource implications other than the cost of the prosthetic joint (e.g., staff morale);
- lack of consideration of outcome analysis and the complexity associated with analysing "continuous, longer term events";
- undervaluation of elective proce-

dures by administrations, which view such interventions as “eminently modifiable.”

There is some substance to his claims. However, his arguments would have benefited from a broader perspective. To define the suggested perspective is a difficult challenge but one that must be enjoined because these ethical challenges and decisions are more apt to intensify than to abate. Accordingly, a return to first principles may be useful rather than unravelling a confrontation between hospital administrators and surgeons.

Health care is a moral enterprise. It should exist to contribute to the quality and duration of life of those it

serves; that is, those who by virtue of illness or injury are in need of care.

In this context, there exists the requirement under the Canada Health Act (recently reaffirmed by the National Forum on Health) that any medically necessary intervention be carried out and be available to all. Of course, stating it philosophically is far simpler than executing it when there are increasing constraints financially, and evidence for the utility of a particular treatment may be lacking. The centrepiece of the approach is to consider the minimal requirements of any surgical intervention. If a consensus is forthcoming, it gives a rational basis for dialogue between

practitioners and administrators. Table I provides a suggested framework for discussion.

This framework is summative and minimalist. Each of the elements could be the subject of a prolonged dissertation or debate, or both. Nonetheless, it is a starting point for meaningful dialogue and broadens the considerations beyond the narrower perspective of the protagonists identified by Dr. Gross. Indeed, there is much to be gained by members of the public being included in the discussion because they are the paymasters. The decisions are of great importance; more than content experts are required.

In summary, Dr. Gross has raised a crucial issue: that of distributive justice. He is correct in identifying the ethical peril that exists if current practices such as bulk purchasing are carried out on a fiscal basis alone. There is much more at stake than the next quarter’s budget, but it is this principle-centred approach that is required to find the best solutions. These solutions are to be found not only through evidence-driven decision-making, essential though it is to the framework, but also by a far broader discussion than that between administrators and surgeons.

Robert Y. McMurtry, MD
 Dean
 Faculty of Medicine
 University of Western Ontario
 London, Ont.

Table I

The Requirements of Surgery*

Patient-based
Health status is adequate.
Compliance with perioperative care is possible and an effective partnership between patient and provider exists.
Provider-based
Skills to accomplish the planned change of anatomy exist.
Essential resources (human/people, equipment and space) are immediately available intra- and postoperatively.
Disease-based
Evidence exists that the intervention offers a clear advantage to the natural history of the disorder.
Evidence supports that the intervention is the best option in terms of patient morbidity and mortality and is associated with the most favourable cost utility.

*Definition of surgery: a planned change of anatomy