New capital acquisitions

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The current fiscal environment has resulted in restrictions on the types of capital that can be brought into operating rooms across the country. Surgeons are finding it challenging to incorporate new technologies into clinical practice. Such technologies may include equipment, implants, diagnostic modalities and pain control devices. A specific challenge has centred on the use of expensive implants for reconstructive purposes. In breast reconstruction, hospitals are endeavouring to contain costs by restricting the types of implants that can be used. In addition, the introduction of acellular dermal matrices has resulted in rapidly escalating capital costs. Similar phenomena have been observed in craniofacial surgery, in which the introduction of three-dimensional imaging and computer-generated implants has improved reconstructive outcomes with a commensurate increase in implant cost. Hand surgery is replete with examples of increasing cost associated with plates, joint replacements and custom implants. While these may have benefits for patients, hospitals and health authorities are requiring financial justifications for their use.

In many instances, these implants are presented at a value analysis committee or some similar panel. Most of these panels will include representation from surgical administration, such as the Chief of Surgery. They will also include members of the operating room administration, senior hospital administrations and members of the finance department. In most instances, members of these committees will have no insight into the clinical problems being addressed or the putative justification for the increased expenditure on an implant. However, these bodies will have profound impact on determining whether these technologies will be adopted. It often falls to the surgeon or his/her representative to present a case for the use of these new technologies to be arbitrated by such committees.

We have sought opinions from every member of these panels to determine the factors that lead to successful presentations and ultimate approval of new devices as well as some of the pitfalls encountered.

Presentation of the clinical problem

It is imperative that the current clinical problem be clearly delineated. This requires an understanding of the deficiency of care that is to be corrected and the current standard of care. Such delineation should be accompanied by photographs to the greatest extent possible to emphasize the problems that accrue in the context of current technologies.

Description of available solutions

In most instances, there is a current standard of care. For example, the introduction of acellular dermal matrices into breast reconstruction facilitates single-stage breast reconstruction. It is important to present the standard that is being replaced by this approach. In this case, multiple alternatives should be presented including flap reconstruction, two-stage expander and implant reconstruction or reconstruction with devices that can serve both as expanders and permanent implants. The alternatives should be clearly presented and photographs should be used to familiarize committee members who have no experience with the problem.

Costs associated with the change

Adoption of new technologies is always associated with a cost. In most instances, this cost is attributed to two significant issues. The first is procurement. Purchasing the new devices often exceeds expenditures for currently used devices. The second cost is the use of operating time, which can be positive or negative.

It should be emphasized that in the Canadian context, the argument respecting reductions in operating time or the number of surgical procedures for a patient is not often persuasive. This is attributed to the manner in which most hospitals are currently funded for cases. In most cases, operating rooms function at capacity. Therefore, while a reduction in operating time may reduce the overall cost of the surgical procedure for a specific patient, it increases the overall cost of running the operating room for the hospital. This is because another case is always available to occupy the available time. In most cases, while the cost per patient is reduced, the overall cost to the operating room actually increases because the hospital is operating in a microeconomic environment of unlimited demand.

A more successful approach to reductions in the variable costs associated with employment expenditures relates to overtime and hospital length of stay. For example, if a new technology results in decreased frequency of complications and associated night-time 'take backs', this would prove very persuasive to a finance official. In addition, if the expenditure resulted in faster discharge or the conversion of an inpatient procedure to an outpatient procedure, this would also be very convincing. Similarly, a demonstration of reduction of expensive complications would be crucial.

The cost of the current devices needs to be juxtaposed with the cost of the new proposition. Furthermore, some measure of benefit should be introduced. These measures of benefit should include patient-reported outcomes, patient satisfaction or utilities. Most administrators suggest that morphological outcomes or surgeon satisfaction is not persuasive in this context. If patients are similarly satisfied with two technologies, the hospital will most often select the least expensive alternative. It is worthwhile to accumulate data that demonstrate superior patient satisfaction with the use of new technologies.

The gold standard for these metrics is the introduction of quality-adjusted life years added. In this scenario, a presentation that demonstrates added utility can be compared with other technologies from across disciplines and facilitates transparent budgeting.

Proposed inclusion and exclusion criteria

Most administrators are wary of the widespread introduction of new technologies. It is, therefore, useful to describe the population most affected and who would most benefit and propose to use these technologies on this population first. It is also worthwhile to do so to avoid the arbitrary imposition of such restrictions by bureaucrats who are unfamiliar with the clinical problems. In most cases, such decisions will be based on a first come first serve basis rather than based on true need. The ability to present exclusion criteria demonstrates an acknowledgement of financial constraints.

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Establish a budget

Any presentation should be accompanied by a budget that the surgeon would agree to manage or facilitate. This would include ensuring that any financial commitment could be constrained. For example, in the case of acellular dermal matrices, inclusion and exclusion criteria can be established and an annual budget can be proffered. In the event that the budget is exceeded, the surgeon can elect to defer some cases to another fiscal year or renegotiate the budget. However, any presentation that demonstrates a capacity and willingness to manage this budget is more likely to be successful.

Outcome metrics

Establish metrics by which the new program and technology will be judged and a strategy for ongoing evaluation. This ensures that the program will be subject to scrutiny only to the extent of a reporting requirement and not an auditing requirement. In most instances, such metrics should be financial or have some benefit to the patients or the institution.

The introduction of these methods appears to facilitate a successful adoption of new technologies. By combining these features, a physician has an increased likelihood of incorporating a new program and being able to financially manage its course.