Considering the cost of CABG

It is evident to me that one of the consequences of the article by Gary Naglie and colleagues[1] on the age difference in the cost of coronary artery bypass grafting (CABG) will be an attempt by the cost managers to reduce the numbers of seniors who have this procedure. This is ageism at its worst.

Considering that half of the cost of health care for an individual occurs in the last year of life (when he or she is sickest, unto death), it should have been self-evident that it costs more to treat older people. The need to put a figure on this escapes me. However, it will not, you can be sure, escape the cost-cutters. There will be a push to limit this procedure to those under 65 years of age, even though the "research" does not demonstrate that the outcome is different among those who are younger, or that the postoperative life span is longer or more productive.

This appears to me to be a nasty article, which serves no good purpose, but will, I fear, produce bad consequences.

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Reference

1. Naglie G, Tansey C, Krahn MD, O'Rourke K, Detsky AS, Bolley H. Direct costs of coronary artery bypass grafting in patients aged 65 years or more and those under age 65. *CMAJ* 1999;160(6):805-11.

[Three of the authors respond:]

We are chagrined by Michael Walsh's perception that we have been authors of a "nasty" article, but we are not unaware of the irony of this accusation. As practitioners who primarily care for seniors, we routinely advocate that CABG be performed in patients over 65 years of age, both for our own patients and at a policy level. What particularly concerns us about Walsh's comments is the potential for misunderstanding and misuse of descriptive costing information. We wish to emphasize most strongly that clinical policy is only indirectly related to descriptive costing information. Whether CABG should be performed in seniors depends primarily on 3 things: efficacy, effectiveness and cost-effectiveness.[1,2] Cost-effectiveness expresses the relation between the cost and the clinical value of an intervention. Transplants, for example, are very costly, but they are usually cost-effective because they are extremely effective. A cost-effectiveness model that we are working on suggests that the same is likely to be true for CABG in seniors.[3] It is quite expensive but probably worth doing because it is very effective in prolonging life (for selected indications) and relieving angina.

So what is descriptive costing information good for? Costing studies allow us to identify categories of heavy resource utilization (e.g., drugs, investigations, inpatient care) and to direct future research efforts to areas in which the potential gain would be greatest. Our results indicate that the majority of the cost difference between older and younger patients was accounted for by the difference in the length of stay in the intensive care unit and on the ward. Identification of modifiable factors that contribute to longer stays for older patients may lead to interventions that decrease costs and also potentially improve clinical outcomes.

We strongly discourage the misuse of costing data alone to guide clinical policy. We hope that this descriptive costing study will not be fodder for the "cost-cutters," rather that it will promote further research that will lead to improvements in CABG for patients over 65.

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References

1. Detsky AS, Naglie IG. A clinician's guide to cost-effectiveness analysis. *Ann Intern Med* 1990;113:147-54.
2. Laupacis A, Feeny D, Detsky AS, Tugwell PX. How attractive does a new technology have to be to warrant adoption and utilization? Tentative guidelines for using clinical and economic evaluations. *CMAJ* 1992;146:473-81.
3. Naglie G, Krahn M, Tansey C, Detsky A, Bolley H. Is coronary artery bypass surgery cost-effective in the elderly? [abstract]. *Clin Invest Med* 1997;20(Suppl):S23.

Home is where the health care is

None of the 4 selected class 1 studies in the review paper by Lee Soderstrom and colleagues[1] reported genuine acute home care programs. In the selected studies, the definitions of acute home-based care were problematic. Richards and colleagues[2] described hospital in the home (HIH) as "a generic term, referring to a package of home based nursing and rehabilitation services," whereas Shepperd and colleagues[3] restricted the eligibility to patients older than 60 years with 5 broadly defined conditions. These studies included patients selected on the basis of their clinical condition and its burden on the hospital, rather than on the basis that they had definite acute care needs and that this care could be appropriately delivered at home. The presence of validated research instruments seemed to influence the conditions chosen for inclusion in some trials. Data on the length of stay presented in these trials suggest strongly that the programs were additive to hospital stays and not substitutive.

The appropriate definition of HIH is one in which the patient requires treatment that, without the presence of the HIH, would otherwise require care in hospital. Substitution is the critical component of HIH care; it can be demonstrated through the use of hospital technologies or drugs not usually associated with community care (e.g., intravenous therapy and pumps, low molecular weight heparin), by the delivery of 24-hour care to patients or by the fact that hospitals retain the legal and financial responsibility for care provision. None of these preconditions

is apparent in the selected class 1 studies. Valid selections would have included the randomized controlled trials by Levine and colleagues[4] and Koopman and colleagues[5] in the management of deep venous thrombosis and by Wolter and colleagues[6] in the management of cystic fibrosis at home.

Without firm definitions and consistent clinical applications with which to define the interventions, cost comparisons are as problematic as assessments of the clinical outcomes of such trials. In an assessment of the cost of HIH care for the delivery of intravenous therapy to patients with cellulitis,[7] HIH admissions were approximately 40% less costly for patients admitted to the HIH directly from the emergency department and approximately 30% less costly for patients who required a stay within the hospital itself. The greatest savings were found in hospital overhead costs and nursing salaries, while HIH was more costly in the provision of pharmaceuticals and procedures. The results concurred with my clinical experience in the delivery of acute care to over 1200 patients at home.[8,9]

Systematic reviews of complex health service interventions such as HIH should be used with great care and usually resist efforts at reductionism. The results of the article by Soderstrom and colleagues[1] must be scrutinized in that light. The challenge is to establish high-quality HIH programs and then test their efficiency in a randomized controlled trial for a variety of clinical conditions and therapeutic interventions. To do otherwise is, to borrow from the biomedical vocabulary, to skip phases 1 and 2 and go straight to phase 3 trials.

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References
1. Soderstrom L, Tousignant P, Kaufman T. The health and cost effects of substituting home care for inpatient acute care: a review of the evidence. *CMAJ* 1999;160(8):1151-5.
2. Richards SH, Coast J, Gunnell DJ, Peters TJ, Pounsford J, Darlow MA. Randomised controlled trial comparing effectiveness and acceptability of an early discharge, hospital at home scheme with acute hospital care. *BMJ* 1998;316:1796-801.
3. Shepperd S, Harwood D, Jenkinson C, Gray A, Vessey M, Morgan P. Randomised controlled trial comparing hospital at home care with inpatient hospital care. 1: Three month follow up of health outcomes. *BMJ* 1998;316:1786-91.
4. Levine M, Gent M, Hirsch J, Leclerc J, Anderson D, Weitz J, et al. A comparison of low molecular weight heparin administered primarily at home with unfractionated heparin administered in the hospital for proximal deep vein thrombosis. *N Engl J Med* 1996;334:677-81.
5. Koopman MM, Prandoni P, Piovella F, Ockelford PA, Brandjes DP, van der Meer J, et al. Treatment of venous thrombosis with intravenous unfractionated heparin administered in the hospital as compared with subcutaneous low molecular weight heparin administered at home. *N Engl J Med* 1996;334:682-7.
6. Wolter JM, Bowler S, Nolan P, McCormack J. Home intravenous therapy in cystic fibrosis: a prospective randomized trial examining clinical, quality of life and cost aspects. *Eur Respir J* 1997;10:896-900.
7. Montalto M, Watts J. *Considering the cost of hospital in the the home*. Melbourne: Centre for Health Program Evaluation; 1998.
8. Montalto M. How safe is hospital in the home? *Med J Aust* 1998;168:277-80.
9. Montalto M. Hospital in the home: take the evidence and run. *Med J Aust* 1999;170:148-9.

[The authors respond:]

In our review of the research evidence regarding the health and cost effects of substituting home care services for some inpatient acute care,[1] we drew 2 conclusions. First, although the evidence indicates that such home care has no notable effects on patients' or caregivers' health, it does not establish that this home care reduces health care costs. Second, the available, internally valid evidence is very limited, so well-designed evaluations of this home care are urgently needed. Michael Montalto's comments are consistent with our conclusions.

He argues that "genuine acute home care programs" were not evaluated in the 4 most valid studies we reviewed. We disagree. Those studies involved health conditions for which home care is thought appropriate clinically, and, in the programs evaluated, health professionals provided services in patients' homes that were substituted for inpatient care.

Montalto also argues that we should have considered 3 other studies. Two of them[2,3] evaluated programs in which patients with venous thrombosis self-injected heparin at home, not programs involving health professionals providing services in patients' homes. Moreover, had we included these 2 studies, there would still be no evidence that home care was cost-effective for most health conditions for which it was being used. The third study[4] concluded that home care was cost-effective. However, the cost-effect estimate is questionable. Inappropriate cost calculations were made by using hospital revenue data (i.e., diagnostic-related group reimbursement rates). The researchers did not estimate the change, caused by the use of home care, in the value of the hospital resources used to manage the patients' health problems.

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References
1. Soderstrom L, Tousignant P, Kaufman T. The health and costs effects of substituting home care for inpatient acute care: a review of the evidence. *CMAJ* 1999;160(8):1151-5.
2. Levine M, Gent M, Hirsch J, Leclerc J, Anderson D, Weitz J, et al. A comparison of low molecular weight heparin administered primarily at home with unfractionated heparin administered in the hospital for proximal deep vein thrombosis. *N Engl J Med* 1996;334:677-81.
3. Koopman MM, Prandoni P, Piovella F, Ockelford PA, Brandjes DP, van der Meer J, et al. Treatment of venous thrombosis with intravenous unfractionated heparin administered in the hospital as compared with subcutaneous low molecular weight heparin administered at home. *N Engl J Med* 1996;334:682-7.
4. Wolter JM, Bowler S, Nolan P, McCormack J. Home intravenous therapy in cystic fibrosis: a prospective randomized trial examining clinical, quality of life and cost aspects. *Eur Respir J* 1997;10:896-900.

A straw-man argument?

A recent article by Martin Schechter and Michael O'Shaughnessy, "Krever 2008,"[1] is a hypothetical transcript set in the future in which the authors present the testimony of an "ex-