

Systematic Review of Activity-Based Funding of Hospitals: Effects on Health Care System Cost, Quality, Access, Efficiency, and Equity

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The Canadian approach to funding hospitals may be on the verge of a monumental change. Up until recently, hospital funding has been predominantly based on global budgets. Health systems throughout the country are seriously considering - and some have already begun adopting - an alternative to traditional global budgets referred to as activity-based funding (ABF).

In contrast to global budgeting, a health care system operating under ABF pays hospitals per episode of care for each patient served. In simple terms, when a hospital is

remunerated under ABF, the money follows the patient. With ABF, hospital services are prospectively classified into clinically meaningful “bundles” of care that use similar levels of resources. These bundles account for patient characteristics including diagnosis, complexity, and anticipated volume of care. Different terms are used internationally to describe these bundles of services, including diagnosis-related groups (DRGs) in the U.S., health-resource groups (HRGs) and case mix groups (CMG+) in Canada and, elsewhere, volume-based funding or payment-for-volume.¹ A variety of costing methods are used to set a “price” for the bundle of services provided to each patient during a hospital stay.

The historical roots of ABF lie in the US health care system. In the late 1970s, rising health care costs in the US coupled with economic stagnation forced policy-makers to investigate financing reforms for Medicare (the publicly-funded program for those aged 65 and older). Starting in 1983, the government implemented prospective hospital payment based on DRGs. Rather than simply reimbursing hospitals whatever they charged to treat Medicare patients, the new model paid hospitals a predetermined, set rate based on the patient's diagnosis.² Since then, other countries have adopted, and adapted, this approach as the basis for part, or all, of their own hospital funding systems.

With reductions in government revenues necessitating a desire to “bend the cost curve” in health care, Canadian ministries of health are “focusing more on efficiency, value for money, and accountability”³ while simultaneously looking for ways to increase access to hospital care and maintain quality of care.⁴ ABF has captured the imagination of policy-makers and advocates as one potential component of hospital reform. The rationale for implementing ABF in Canada is, therefore, to introduce a funding model with the putative benefits originally achieved in the United States.

What are those benefits? In theory, by fostering competition for patients between hospitals, ABF provides hospitals with financial incentives to increase efficiency. Under ABF, hospitals retain any surplus in funding above their expenditures per case, but must absorb any losses if expenditures exceed reimbursement. The theoretical benefits from these incentives include stimulating productivity (i.e. increasing patient throughput), improving efficiency, increasing transparency and accountability in hospital spending, improving access through reducing wait times, and/or moderating cost growth.⁵

Unfortunately, there are also possible adverse consequences of introducing ABF. The incentive to spend less per patient could encourage the premature discharge of sick patients from hospital, which might increase preventable readmission rates and post-discharge mortality. Spending less per patient might also compromise the quality of care patients receive in hospital or lead hospitals to eliminate unprofitable services (such as trauma units). There is concern about a “cherry-picking” or “cream skimming” effect that could reduce equitable access to care if hospitals preferentially cater to profitable patients. Any efficiencies gained through ABF may be undermined by rising administrative costs to cope with coding and monitoring demands. Another worry is that by breaking care into “saleable units”⁶ ABF will facilitate the introduction of private profit-driven delivery of care.

British Columbia and Ontario are leading the movement toward ABF as an alternative to, or in combination with, global budgets. Early 2013 results from British Columbia show that one anticipated benefit, increasing patient throughput, has not been achieved: a study found “no intervention effect of the ABF reform on changes in surgical volumes over time in five health authorities.”⁷ Such findings raise questions about whether the putative benefits of ABF play out when implemented in the real world.

The international literature on ABF consists of research studies and non-systematic reviews without, so far, a single systematic review.^{8, 9} Policy-makers rely on robust evidence to make well-informed decisions about how best to finance and deliver health care. “Evidence-informed” policy-making is characterized by the “systematic and transparent access to, and appraisal of, evidence as an input into the policy-making process.”^{10 11} We have therefore launched a systematic review of ABF to inform Canadian policy-makers about how this funding model affects health care systems around the world.

Our systematic search of the world’s evidence has demonstrated there is no shortage of published literature addressing ABF. Of the more than 16,000 potentially eligible titles and abstracts we have screened, 260 studies, representing 27 countries, provide data on at least one of the cost, quality, access, efficiency, and equity outcomes of interest to our research team. We are now in the process of abstracting data from the eligible studies most germane to the Canadian context.

Currently, Canadian policy-makers are considering hospital funding decisions in the absence of a systematic review of the relevant evidence regarding the impact of ABF. The limited reviews available may well reflect biased selection of the available evidence. It will be unfortunate if Canadian governments move to ABF only to find, for instance, that they obtain none of the putative benefits, but instead observe premature hospital discharges to an unprepared post-hospital care system and subsequent adverse health consequences to patients. It will be particularly unfortunate if, armed with a systematic review of the evidence, they could have foreseen such an unfortunate outcome of their policy experiment.

Our systematic review will soon provide a more robust evidence base to better inform decision-makers. Until then, it would be imprudent to rush to judgment about the effects ABF may, or may not, have on Canada’s health care system. We look forward to releasing our results in the near future, and encourage governments to consider the implications of our review in their decisions about hospital funding reforms.

- ¹ Activity-based Funding in Canadian Hospitals and other Surgical Facilities [Internet]. Canadian Doctors for Medicare; 2008 [cited 2012 July 11]. Available from: <http://www.canadiandoctorsformedicare.ca/Issues/abf-bulletins.html>
- ² Mayes R. The origins, development, and passage of Medicare's revolutionary prospective payment system. *J Hist Med Allied Sci*. 2007 Jan; 62(1):21-55.
- ³ Canadian Institute for Health Information [Internet]. Health Care in Canada 2009: A decade in review. Ottawa, Ont.; 2009. [cited 2013 July 11]. Available from: https://secure.cihi.ca/free_products/HCIC_2009_Web_e.pdf
- ⁴ Canadian Institute for Health Information [Internet]. Discussion paper activity-based funding unit. Ottawa, Ont.; 2010 Oct. [cited 2013 July 11]. Available from: http://www.cihi.ca/CIHI-ext-portal/pdf/internet/primer_activity_based_fund_en
- ⁵ Canadian Institute for Health Information [Internet]. Overview of activity-based funding. N.D. [cited 2013 July 11]. Available from: <http://www.cihi.ca/CIHI-ext-portal/internet/EN/tabbedcontent/health+system+performance/health+funding/activity+based+funding/cihi008054>
- ⁶ Woolhandler S, Himmelstein DU. Competition in a publicly funded healthcare system. *BMJ*. 2007; 335:1126-1129.
- ⁷ Sutherland J, Guiping L, Repin N, Crump T. Activity based funding in BC: Changes in activity? Paper presented at: Canadian Association for Health Services and Policy Research Conference, May 28-30, 2013. Published Abstract G3.4 Available from: <http://www.cahspr.ca/sites/default/files/imce/Book%20of%20Abstracts%20-%20V11%20-%20CAHSPR%20MAY%201%202013.pdf>
- ⁸ Cohen M, McGregor M, Ivanova, I, and Kinkaid, C. Beyond the hospital walls: Activity-based funding versus integrated health care reform, Canadian Centre for Policy Alternatives, 2012 January. [cited 2013 2 July]. Available from: http://www.policyalternatives.ca/sites/default/files/uploads/publications/BC%20Office/2012/01/CCPA-BC_ABF_2012.pdf
- ⁹ Canadian Institute for Health Information [Internet]. Evaluating the Impact of Activity-Based Funding on Health System Performance, Ottawa, Ont.; 2013 February 21. [cited 2013 11 July]. Available from: http://www.cihi.ca/CIHI-ext-portal/pdf/internet/EVALUATING_IMPACT_ABF_EN
- ¹⁰ Oxman A, Lavis J, Lewin S, and Fretheim A. **SUPPORT Tools for evidence-informed health Policymaking (STP) I: What is evidence-informed policymaking**, Health Research Policy and Systems, Suppl I:SI, 2009 [cited 2013 2 July]. Available from: <http://www.health-policy-systems.com/content/pdf/1478-4505-7-S1-s1.pdf>
- ¹¹ Lavis JN, Davies HTO, Oxman A, Denis J-L, Golden-Biddle K, Ferlie E. Towards systematic reviews that inform healthcare management and policymaking. *Journal of Health Services Research and Policy*; 2005 July 10; (Suppl 1): 35-48.