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Reviewing the Potential Roles of Financial Incentives for Funding Healthcare in Canada

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KEY MESSAGES

- ▶ Healthcare costs have been consistently rising, now constituting around 40 percent of provincial GDPs, and threaten to overwhelm the ability of provinces to fund the breadth of healthcare needs of their residents. The ways in which Canadian provinces fund healthcare is an important issue facing policymakers since ineffective, inefficient and unsafe care is a waste of taxpayers' money and potentially harms patients.
- ▶ Currently, most provinces fund healthcare through a 'global budget,' where a fixed amount of funding is distributed to a provider (e.g. a hospital or a health authority) to pay for all insured healthcare services for a fixed period of time. The key benefit of global budgets is that they provide a method to control expenditures. Hospitals account for the largest piece of these expenditures, at about 28 percent of total healthcare costs.
- ▶ Compared to international norms, Canada is unusual in its extensive use of global budgets to fund healthcare. Most countries fund healthcare based on the type and amount of services provided, known as activity-based funding (ABF).
- ▶ Funding healthcare providers based on the type and amount of services provided increases transparency in the healthcare system and creates financial incentives for increasing access. However, with more services provided, there is a commensurate increase in healthcare expenditures.
- ▶ Many countries have been able to use the financial incentives of ABF to improve access to care while effectively minimizing the downside risks to quality and safety.
- ▶ With clearly articulated policy objectives, provinces are in a position to learn from other countries' experiences in healthcare funding reforms, adapt effective strategies and avoid risks to quality and access.

EXECUTIVE SUMMARY

Policymakers across Canada have taken a recent interest in using funding policy as a lever to improve the effectiveness and efficiency by which healthcare is provided in Canada. There are recent initiatives in British Columbia, Alberta and Ontario that are serving as early examples of policy experiments. These initiatives build on the earlier federal wait times strategy for surgical care used to expedite access, and reduce wait times, for some elective surgeries.

The experiences of the international community can serve as a valuable resource for Canadian policymakers as they continue to develop, test and reshape new policy initiatives. This report summarizes available evidence regarding the strengths and weaknesses of different methods of funding healthcare. While hospitals are the largest source of healthcare expenditures, this report examines the evidence across the full continuum of care, including methods for allocating regional funding, post-acute, mental health, community and preventative care services.

This report is intended to serve as a resource which describes the methods and results of different approaches to funding healthcare, though physician payment and drug payment policies are included only insofar as they affect acute and post-acute care. The most common funding methods, including global budgets, activity-based funding (ABF), and pay-for-performance (P4P) are described in detail and the methods are contextualized to the Canadian healthcare setting. Then, the report describes initiatives in other countries that ‘bundle’ care together. Finally, descriptions of recent provincial initiatives for funding healthcare services are included.

This report is a companion report to *‘Funding Health and Social Care in Montréal, Québec: A Review of the Methods and the Potential Role of Incentives,’* published by the Canadian Foundation for Healthcare Improvement. The second companion report includes a detailed description of the methods used to fund health and social care in Québec, and concludes by contrasting international experiences in funding healthcare to those in use in Québec.

Population-Based Funding

Population-based funding is predominantly a method to allocate funds for healthcare to regions. Population-based funding draws upon data about a population’s health status and health care utilization to project a region’s healthcare expenditures onto a future period of time.

Population-based funding is seen as an equitable approach to allocating funds to regional entities for healthcare expenditures since it is based on the characteristics of the region’s population. This approach is especially appealing in Canada where a single funder, the government, is responsible for the entirety of the populations’ health. This approach strengthens regional autonomy and allows for flexibility in the provision of healthcare services based on the perceived needs of its residents. However, this approach’s effectiveness can be limited by difficulties in accurately measuring the population’s health or need for healthcare.

Global Budgets

Global budgets are the most common funding method for healthcare in Canada. This approach is used to fund hospitals, long-term care and chronic care in many provinces. Under global budgets, a fixed amount of funding is distributed to a healthcare provider, who is then responsible for delivering services to the regions’ residents for a fixed period of time.

Global budgets provide an effective method to control expenditures through the use of a ‘cap’. However, to meet budget targets, some providers may restrict access to services (resulting in wait lists). Moreover, global budgets provide little incentive to improve efficiency, invest in quality improvement or integrate services with providers across the continuum.

Activity-Based Funding

ABF is the international norm for funding acute care. It is a method for funding healthcare services based on the type and amount of care provided. The most common objectives that countries have for adopting ABF are to make funding more transparent and to create incentives for increasing productivity and efficiency. Most countries use a mix of ABF and other funding methods to achieve their objectives, which range from improving access to introducing competition among providers. In many countries, ABF is associated with increased access to hospital care and reduced wait times for acute care services. This positive outcome is mitigated by the commensurate increase in expenditures.

Evidence does not support the “sicker-and-quicker” argument that patients are discharged prematurely so that providers can maximize revenue.

While ABF is most common for acute hospital services (where patients’ episodes are relatively easy to observe) it has also been adapted for funding non-acute care services, such as: long-term care, mental health, continuing care, inpatient rehabilitation and ambulatory care. For these services, the evidence supporting the effectiveness of ABF to achieving its’ policy objectives is limited.

In contrast to global budgets, the intensity of information needed to support ABF is relatively high. ABF also creates incentives to ‘game’ revenues by manipulating data. No provinces in Canada have developed effective policies to monitor and enforce clinical data quality standards to minimize the risk of these detrimental efforts.

Pay-for-Performance

P4P is a funding method that, most often, provides incentives to improve quality of care. P4P remunerates providers for achieving pre-specified objectives, such as thresholds of quality or safety. Despite widespread adoption of P4P initiatives, these programs demonstrate mixed impacts or weak results. Moreover, increases in quality tend to be modest, incremental, or temporary across quality indicators and there is little evidence showing positive patient outcomes from these programs.

Bundles of Care

Payments for bundles of care are for a set of services or treatments provided to a patient for an episode of care across providers and settings. Bundles are an emerging form of healthcare funding, and seek to create financial incentives for providers to formalize linkages between care providers to improve care transitions, care coordination, and reduce inappropriate cost shifting.

Overview of Canadian Initiatives

Some Canadian provinces have begun experimenting with healthcare funding reforms. In April 2010, B.C. implemented several funding changes under the umbrella of patient-focused funding (PFF), which included an ABF component (as a percentage of the budget) for B.C.’s largest hospitals. B.C. also uses a form of ABF to allocate resources for renal and cardiac services. Alberta is in the midst of a six year phase in of ABF for funding long-term care and Ontario is using case-mix adjusted funding as a portion of the long-term care funding envelope.

Summary

Budget pressures are pushing policymakers across Canada to re-examine how they fund healthcare services in terms of the performance they wish to achieve from their healthcare systems. Fortunately, there is a rich body of evidence and experiences from which policymakers can draw from to inform their understanding and expectations regarding different healthcare funding methods.

The objective of this report is to review different funding methods and their outcomes, not critically appraise the different funding methods, or their potential in Canada; nor does this report offer recommendations regarding funding healthcare in Canada. In this regard, the utility of the report is limited in scope, though this report is intended to provide crucial insights to healthcare policymakers and providers. In contrast, the companion report, *Funding Health and Social Care in Montréal, Québec: A Review of the Methods and the Potential Role of Incentives*, provides a number of recommendations regarding healthcare funding in Québec and the Montréal region in the context of methods for funding healthcare described in this report.

INTRODUCTION

There are significant differences in the rules and methods countries use to fund their healthcare services. Ranging from global budgets to funding based on patient characteristics, a variety of methods are used to achieve a range of healthcare system objectives. For instance, in Canada, an important aspect of funding healthcare has been effective expenditure control. This has been achieved by effectively ‘capping’ budgets using global budgeting approaches. In contrast, other countries with publicly-funded healthcare systems have placed a heavier emphasis on improving both efficiency and access. These objectives are supported by remunerating providers of healthcare based on the volume and characteristics of patients they treat.

Policymakers across Canada have a renewed interest in examining the methods used to fund publicly funded healthcare services- motivated by the dual objectives of improving quality and constraining cost growth. In this regard, many policy- and decision-makers have turned to the experiences of the international community to inform their understanding of healthcare funding methods, successes and failures. Given the wide array of funding approaches, synthesizing this information can be daunting for policymakers.

This report reviews the published and grey literature relating to funding healthcare services, their objectives and the intended (and unintended) results. This report examines the literature from across countries and ongoing projects in Canadian provinces. The report considers approaches to funding healthcare across the spectrum, including acute, post-acute, mental health, and rehabilitative care. By design, to limit scope, this report does not include the literature regarding physician or drug payment, except where these topics overlap with funding other healthcare services.

This report is a comprehensive resource that describes methods used to fund healthcare services, provides examples, synthesizes the literature and provides a comprehensive reference list. Notably, this report includes descriptions of ongoing and recent provincial initiatives for funding health services. However, this report does not offer recommendations regarding an evidence-base for healthcare funding in Canada. This report complements a second report commissioned by the Canadian Foundation for Healthcare Improvement (CFHI) by the same research team reviewing the methods and approaches to publicly funded social services and healthcare in Quebec. The companion report contrasts the evidence base of funding policies applied worldwide to those applied in Quebec, and concludes with a comprehensive set of considerations regarding funding social services and healthcare in Quebec.

This report is organized to provide a description and interpretation of methods and rules used to fund health services across the globe. It starts by describing the most common methods used to fund healthcare in Canada – population-based funding and global budgets -and detailing their respective strengths and weaknesses. Throughout the report, it is assumed that, in the Canadian context, healthcare services provided are publicly funded.

The report describes activity-based funding (ABF) and pay-for-performance methods, again, detailing their respective strengths and weaknesses. While ABF has been used primarily in acute care, this report also describes the expanding use of ABF in post-acute and community-based care. In doing so, this report also discusses the difficulties associated with implementing ABF in areas beyond acute care, such as mental health.

'Bundles' of care are now being discussed as viable complements for funding patients' care across settings and over time in other countries. This report includes a description of advances in the methodology for developing bundles of care, and includes some discussion of their potential application in Canada.

The focus of the report then turns to current healthcare funding initiatives in Canada's provinces. The report describes patient-focused funding in British Columbia (B.C.), and includes detailed descriptions of renal and cardiac funding in that province. The report also describes the introduction of ABF to fund long-term care in Alberta. The report then describes the end stage renal disease bundle payment model in the United States. The examples of initiatives described in this report are those that are of most interest, and have the most relevance to, publicly funded healthcare in Québec, specifically the Montréal region. The specific initiatives in this report have been selected to complement the companion report, *Funding Health and Social Care in Montréal, Québec: A Review of the Methods*, which makes recommendations specific to funding health and social care in the Montréal region.

POPULATION-BASED FUNDING

Population-based funding refers to methods and rules for allocating (healthcare) funds from a central government to regions in order to fund the healthcare services of the residents of the regions. Population-based funding (sometimes referred to as population-based ‘models’ or needs-based models) draw upon physician, hospital and post-acute care data plus demographic, socio-economic, and other health-related characteristics to project a geographic region’s healthcare expenditure over a fixed period of time.¹ This approach is based on the theory that populations of equal size do not necessarily have equal healthcare expenditure needs.²

Many Canadian provinces – including B.C., Alberta, Saskatchewan, Manitoba, Ontario and Quebec – use population-based models to guide decisions regarding the amount of funding to allocate to their local health regions (i.e., geographic regions responsible for covering acute and continuing care services).² Population needs-based funding was introduced in B.C. in 2002 and is used to allocate funds to health authorities for acute, home and residential care.³ A funding approach developed for Manitoba proposes to include ten characteristics for hospital care, six for personal care homes, and eight for home care (including: age, sex, co-morbidities, socioeconomic status, dying during the year, distance to hospital, born during the year, at risk newborn, chronic disease, injury hospitalization, and marital status).¹ Population-based funding is also used in countries such as the United Kingdom (U.K.), Sweden and others.^{1,4}

In 2007, Ontario created Local Health Integration Networks (LHINs), independent regional entities, which are charged with coordinating (and funding some) health services in their region. These services include the planning, integration and funding of hospitals, community care access centres, community support services, long-term care, mental health and addictions services, and community health centres.⁵ For this and other needs, the Ontario Ministry of Health and Long-Term Care (MOHLTC) developed the Health-Based Allocation Model (HBAM), as a quantitative method to equitably allocate healthcare funds to the LHINs based on the characteristics of their populations.⁶

As described by Ontario’s MOHLTC, HBAM’s goals include promoting equitable access to services across the province, ensuring that money follows the patient, and promoting innovation through incentives for efficient and innovative service delivery.⁷ If fully implemented, HBAM will be used to fund hospitals (including acute inpatient and day surgery, inpatient mental health, complex continuing care, inpatient rehabilitation, emergency, long-term mental health, ambulatory clinics, and community outpatient), community care access centres (home care), long-term care, community mental health, community health centres (variety of primary healthcare services in one location), and community support services (services for seniors and people with disabilities to remain in the community, e.g. adult day service).⁸ Inputs into the HBAM model include:⁶

1. Patient-level measures of disease and measures of health status, age, gender, socio-economic status, rural geography and patient flows;
2. Health service provider-level characteristics such as specialization, rural geography and effects of economies of scale; and
3. Utilization estimates based on detailed clinical groups allowing for investigation of access to care by clinical, social and demographic conditions.

The outputs from HBAM provide the MOHLTC with information on the expected healthcare utilization in each LHIN, depending on patient, provider and utilization characteristics of residents of the LHIN.⁶ HBAM is being introduced in phases. The 2012/13 fiscal year will be the first that HBAM

is partially implemented to fund regions' health services. Hospitals will receive 54 percent of their funding through global budgets, 40 percent based on HBAM and six percent based on clinical quality groupings.^{9,10} Clinical quality groupings are funding allocations targeted at specific groups on a "price x volume" basis, in phase one these groups include: chronic kidney disease, cataract surgery, hip and knee replacement.¹¹

Strengths

Population-based funding is used for regional funding. This method can reduce inequities in the funding of healthcare services by allocating funds to regions based on the characteristics of the people living there (rather than how much they received in previous periods).^{2,4} Often, population-based funding is seen as more equitable than global budgets.² Furthermore, population-based funding is also seen as strengthening regional autonomy, and flexibility, in providing healthcare services.^{2,4}

Weaknesses

Population-based funding methods are limited by their ability to capture accurate and objective measures of the underlying population's need for medical care.² Many of the models are based on historical utilization data, which may not reflect appropriate use of medical care.²⁻⁴ For example, historical utilization data does not provide explicit indicators of those who could benefit from health services (i.e., under-utilization of care), or those who are receiving care but are deriving no benefit (i.e., over-utilization of care).⁴ In the Canadian context, Ontario's HBAM method could perpetuate regions' high levels of utilization with no counterbalance for providing effective care.

Another limitation of population-based funding methods is that they may not accurately reflect legitimate geographic variations in healthcare need.² For example, these funding calculations often use socio-economic status as a proxy for healthcare need, on the reasoning that low income groups tend to be unhealthier and in need of more healthcare services. However, there is some research demonstrating that this relationship is more complex, and that health spending can be skewed among all income and age categories, not just the lowest.¹² Some studies observe that as much as 50 percent of the population with the lowest income account for less than five percent of healthcare expenditures, making socio-economic status a poor proxy for "need."¹² The study suggests that high cost healthcare users are a small core of patients that span all income groups.¹²

GLOBAL BUDGETS

Global budgets can be used by governments to fund regions (in contrast with population-based approaches) or individual institutions (or providers). For example, global budgets can be used to fund individual hospitals or long-term care homes. Under global budgets, a fixed amount of funding is distributed to a healthcare provider. The provider is then responsible for delivering services to patients under its care for a given period of time. The specific funding amounts are based on a number of factors, including: historical budgets, rates of inflation, capital investment decisions, negotiation and politics.¹³

The most common method for funding healthcare in Canada is a global budget. Not only are most Canadian hospitals funded under global budgets, but so are long-term care facilities, publicly-funded rehabilitation facilities, and mental and public health programs. Few developed countries other than Canada exclusively use global budgets for funding healthcare services. Many countries have blended their global budgets with other funding methods or transitioned to other methods entirely.¹⁴

Strengths

The primary strengths of global budgeting are that they provide budgetary predictability and, in some cases, transparency; they also limit growth in expenditures by making it relatively straightforward to cap budgets.^{13, 15}

A (dated) 1991 econometric study from the Organisation for Economic Co-operation and Development (OECD) associates global budgets for hospitals with a 13 percent reduction in national health expenditures.¹⁶ Two factors were strongly associated with this observation: 1) a partial or complete capping of global budgets, and 2) a strong government commitment to enforcing the established cap.¹⁶ The study also observed that these results applied to publicly- and privately-funded hospitals, as well as hybrids that combine both funding types.¹⁶ France and Belgium were identified as having less success containing costs, due to their fee-for-service funding in ambulatory care (i.e., an absence of global budgets).¹⁶ However, these findings are now over 20 years old, and the relationships between the funding methods and health expenditures may not have endured.

Other international experiences with global budgets have had mixed results. Taiwan transitioned from a fee-for-service hospital funding method to global budgets in 2002 in an attempt to control costs. Evidence suggests that while this objective was successfully met, it came at the expense of healthcare quality.¹⁷

The effectiveness of global budgets in post-acute care has also been examined. The German long-term care insurance system for in-home and nursing facility care introduced a global cap on expenditures as well as per person spending limits in 1995.¹⁸ During the first four years of operation, the German long-term care insurance system was able to generate surpluses.¹⁸ Since 1999 the surplus has decreased and is expected to go into deficit.¹⁹

Interestingly, while most countries have moved away from global budgets, recent literature from the United States (U.S.) has speculated about the implementation of some form, or mix of, global budgets to help control healthcare costs for all medical goods and services.^{20, 21} Researchers cite the open and public negotiation of fees and the reduction of administrative expenses as key possible benefits to the U.S. system.²²

Weaknesses

Global budgets have a number of weaknesses compared to other funding methods. In an effort to meet expenditure limits, providers may restrict admissions or types of services; this could result in waiting lists, a frustration with which many Canadians are familiar.²³ Moreover, it is not uncommon to find healthcare institutions restricting (or rationing) funds early in the year to ensure sufficient resources are available later in the year.¹² Together, these factors can reinforce historical inequities in funding or inefficient models of care.

Global budgets provide little incentive for providers to shorten lengths of stay, or to discharge less acute patients to other, less costly settings such as outpatient or home-based care.²⁴ Nor do global budgets provide any incentives for providers to incur higher costs to increase care quality, or decrease waiting lists.²⁵ It can be argued that global budgets provide financial disincentives for providers to maximize the cost-efficiency of their care delivery.

A drawback of global budgets for hospitals is the lack of incentives for hospitals to integrate services with post-acute care providers. These outcomes are evident in the Canadian healthcare system, where one out of eight beds is routinely occupied by a patient waiting for discharge from hospital (otherwise known as alternative level of care, or ALC).²⁴ This 'gap' between hospital and community providers has negative implications for quality, results in higher system-wide costs, sub-optimal clinical outcomes, risks to patients' safety and health, and reduced access to hospital services for those waiting.²⁴

A comparative analysis of seven European countries suggests that the cost constraints associated with global budgets seem to have negative consequences for efficiency and quality.¹⁶ These consequences include delays in service (waiting lists) and a view that the system is unresponsive and even, at times, uncaring of patients' wishes. As a result, patients expressed overall dissatisfaction with the healthcare system.¹⁶

ACTIVITY-BASED FUNDING

Activity-based funding (ABF) may be referred to by any number of names, including volume-based funding, service-based funding, case-mix funding or payment by results. Regardless of the term, it refers to a method of funding healthcare providers based on the kind of care delivered and the complexity of the patients being cared for. ABF is the most common method used to fund hospital-based care outside of Canada, becoming the international norm. Countries such as the U.S., U.K., France, Germany, Finland and others have adopted ABF-style funding methods.

ABF can be introduced to accomplish a number of different policy objectives. The most common objectives are to create transparency in funding and to create incentives for increasing productivity and efficiency.²⁶ Additional objectives motivating other countries' changes in funding methods include:²⁷⁻³⁰

- ▼ Reducing waiting lists,
- ▼ Increasing competition between hospitals to improve quality,
- ▼ Enhancing monitoring of quality and activity, and
- ▼ Reducing excess capacity.

While transparency and efficiency are the most common reasons to adopt ABF, many countries had specific policy objectives that they wished to have ABF address, and designed and implemented their funding systems accordingly. Since population-based funding and global budgets both have identified weaknesses that countries may wish to address with an alternative funding method, ABF is not a panacea for healthcare funding. In England, for example, specific policy objectives clustered around: efficiency, including reducing wait lists, facilitating patient choice, encouraging competition between providers, expanding activity and improving quality.²⁹ Some of these objectives may be contradictory, as unconstrained increases in efficiency can encourage hospitals to minimize costs beyond that which is safe for patients.²⁹ In contrast, in France, for example, wait lists are not a problematic policy issue. In this setting, ABF was viewed as a way to measure hospital activity and encourage competition between private and public healthcare providers, improve transparency and improve quality of care.²⁹ For Germany, increased hospital efficiency was a priority, specifically the reduction of average length of stays in hospitals that were seen to have prolonged (and medically unnecessary) hospitalizations.²⁹ Consequently, the multitude of policy objectives mean that often several changes to the healthcare system are implemented in tandem, including changes to funding methods, making the attribution of results, solely to ABF, difficult.²⁹

Overall, ABF's biggest limitations are the lack of incentives for providing the most effective care and perpetuating the 'siloed' approach to funding health services (though these limitations are also embedded within global budgets). To the latter point, while ABF provides no explicit financial incentives for hospitals to coordinate with post-acute and community providers, there are implicit incentives to link with post-acute care providers in order to discharge hospitalized patients as early as possible.³¹

ABF relies on information about the patient and what occurs during a specific hospitalization in order to describe (and quantify) hospital outputs. To better characterize the services hospitals produce with their funding, classification systems have been developed. These systems are commonly referred to as case mix systems; the most popular one among them being diagnosis related groups (DRG).³² Each DRG represents a constellation of clinically comparable patients whose costs are expected to be similar. In application, DRGs are deterministic algorithms: first, each hospitalization is assigned to a unique DRG; then, each hospitalization is remunerated by the amount of funding associated with the assigned DRG.

Most countries have designed their own DRG-like system to reflect local procedure classifications, treatment costs and patterns, and to gain acceptance with providers, examples include HRG (England), AR-DRG (Australia), and Nord-DRG (Nordic countries).³³ In Canada, the Canadian Institute for Health Information (CIHI) maintains an analogous system known as CMG+, which includes resource intensity weights (RIWs) that can be used to derive expected costs.¹⁴

In most countries' healthcare systems, hospitals derive their revenues from a variety of sources ('payers'). For example, in the U.S., hospitals' revenues come from a mix of private and public insurers (such as Medicare, the federally-administered health insurance system for those over the age of 65 or with some terminal conditions). For these hospitals, some revenues are based on prospective payment of hospitalizations (such as Medicare's revenues) while other revenues are derived from other sources (such as capitation-based contracts). In these mixed revenue models, different sources of revenue can stabilize revenues or subsidize low prospective payment rates. It is exceedingly uncommon for countries to provide all hospital revenues through prospective payment, for example:^{31, 34, 35}

- In Sweden, about half of the county councils reimburse hospitals and primary care centres through DRGs, the remaining are funded through global budgets;
- In Victoria (Australia), when ABF was first introduced in 1993 it accounted for about 25 percent of hospital revenue, and by 2001 had increased to 70 percent;
- In Denmark, ABF covers between 39 and 52 percent of the total funding of hospitals;
- In Norway, the share of ABF for regional health authorities is decided by parliament, and since 2006 has generally been 40 percent ABF and 60 percent block grants, however, regional health authorities have discretion in how they choose to fund hospitals, and these allocations are not transparent;
- In Portugal and Ireland about 80 percent of hospital funding is ABF; and
- In Germany and France they are currently about 80 percent of hospital funding, but are transitioning toward 100 percent.

The rationales for a reduced reliance on ABF as the sole means of funding hospital care are varied. Some countries place ceilings on ABF to prevent unconstrained growth in activity (and hence costs)³¹ These formulas identify target levels of activity and then pay providers a different (reduced) price for activity above the target level.³¹

Other countries rely on different formulations of ABF as a means to further specific policy directions. In the U.K., Australia, Norway and Sweden one reason for the introduction of ABF was to reduce wait times, often through an explicit funding incentive to shift to day-case treatment.^{29, 34} In Germany, Italy and the Netherlands, one rationale for the introduction of ABF was to increase efficiency by encouraging competition among hospitals, and (in Germany) to reduce excess capacity in the hospital sector.³⁴ In some countries, the proportions are varied to reduce the financial risks of ABF to hospitals.²⁹ Australia, for example, carries separate definitions for small regional and small remote hospital types. These hospital-types are funded differently than their larger, urban counterparts – either with fee modifiers or guaranteed levels of funding, to ensure access to care.³⁶ ABF, in relation to other methods of funding hospitals, has been chosen in these countries in an attempt to further particular policy objectives, and thus there is a range of ABF designs and additional funding methods to complement ABF.

There are also other factors that play a role in not adopting ABF as the sole mechanism for funding hospitals, and they include not being able to reliably measure case mix (or intensity of utilization) in all areas of hospital activity, such as ambulatory, rehabilitation and mental health, or maintaining separate funding envelopes for hospitals' intensive care units, teaching or research roles.^{29, 34, 36}

Activity-based Funding in Canada

The suggestion that Canada's provinces move toward ABF for hospitals is not without precedent. The Standing Senate Committee on Social Affairs, Science and Technology, chaired by Senator Michael Kirby, (2002) recommended service-based funding for Canadian hospitals.³⁷ The report outlined that service-based funding would benefit Canada by encouraging efficiencies in hospitals, creating competition between hospitals, encouraging the development of healthcare teams and centers of excellence for specialized services, and improve quality of care.³⁷

In Québec, the Task Force on Health Funding (2008), chaired by Claude Castonguay, released a report that included recommendations to introduce ABF over time for institutional-based care (referred to in the report as the purchase of services).³⁸ The Castonguay report concluded that global budgets lack appropriate incentives for innovation and efficiency.³⁸ The report also anticipated that ABF would reduce administrative costs, render unnecessary the public-private debate and encourage performance measurement.³⁸ The Castonguay report determined that the information and databases necessary to implement ABF existed in Québec and existing data could be leveraged to obtain accurate cost-per-care hospitalization information.³⁸

There is also growing interest among some Canadian provinces for creating financial incentives for hospitals to increase the number of patients treated (volume), improve efficiency, discourage unnecessary activity within the episode of care, and encourage competition between providers. Currently, three provinces (B.C., Alberta and Ontario) are experimenting with some form of ABF for acute care, and Alberta and Ontario are in various stages of implementation for ABF for long-term care funding.¹⁴ In spite of these tentative steps, forms of ABF have already been implemented in many provinces under the guise of the federal Wait Time Strategy. In this approach, provinces used targeted funds to 'purchase' additional surgical care from hospitals, thus providing an opportunity for hospitals to generate additional funds linked to the volume of surgical care. Under any of these programs, to date, there have been no studies of the effects of ABF policies in Canada.³⁹

Strengths

The strengths associated with ABF generally fall into five categories: volume, efficiency, transparency, access, quality. These categories are used to help structure this report, and are not intended to be exclusive and, in many cases, overlap with concepts in other sections.

Transparency

One of the most significant benefits of ABF is its transparency. By linking hospitals' funding to the activity performed or service provided the basis for funding is made clear to all healthcare providers.^{29, 31, 40, 41} ABF also creates a perception among providers of fairness, as equal work results in equal funding amounts.¹⁴

Transparency in healthcare funding is a noted attribute of ABF for four reasons: a measurement of hospital activities is required (through some variant of DRG); these output measures allow for inter-hospital comparisons of costs, efficiency and quality; incentives are provided to encourage hospitals to consistently code diagnoses and procedures; and hospitals are encouraged to improve the precision of their cost-accounting systems.⁴² To the last point, the introduction of ABF often coincides with mandated and standardized cost-accounting systems in hospitals (often, hospitals themselves have the incentive to improve their systems for management purposes).⁴³

Volume

As the name implies, ABF links a hospital's (entire or partial) revenue to its activity. Unlike global budgets, under which patients represent additional costs to the hospital, patients are a source of income under ABF. Consequently, ABF rewards increases in hospital activity. It is important to recognize that, when the number of beds is capped, increases in volume can only be achieved if unused capacity exists (unlikely in Canada's chronically full hospitals) or additional capacity can be generated (by reducing lengths of stays or shifting patients to other settings).

Many countries that have implemented ABF for hospital-based care report volume increases, including Victoria (Australia), Denmark, Spain, Norway, Italy, Sweden, England, France, and Germany.^{29, 32, 34, 36, 41, 44} Studies from the U.K., France, Germany and Ireland also report an increase in inpatient, same-day, and short-stay activity.²⁹ Not only is ABF associated with an increase in hospital activity, but it may also be related to changes in the types of services being performed. Hospitals in France, for example, have reported an increase in their proportion of day cases since the implementation of ABF.^{29, 45, 46} This is supported by observations from 30 OECD countries that hospitals funded by ABF shifted from inpatient care to outpatient care faster than those that were not funded on the basis of activity.^{34, 47}

This increase in activity may not be uniform across hospital services. Evidence from the U.S. indicates that increases in activity tend to occur in areas that have the highest margins (potential for generating surpluses), such as cardiac, orthopedic and surgical services.⁴⁸⁻⁵² Other countries have observed that some hospitals will focus on areas of care where they have a competitive advantage.^{34, 53} For example, small hospitals in Taiwan are less competitive in acute care services and thus are gradually transforming themselves into chronic care oriented providers, and specializing in services such as the use of mechanical ventilators.⁵³

Efficiency

ABF can be designed to stimulate greater efficiency through the use of prices; that is, the amount of money paid to the hospital for performing a specific service. When prices are set below the current cost of care, hospitals are motivated to reduce their costs and become more efficient.³⁰ This is generally achieved by reducing lengths of stay, which results in a higher number of patients treated per bed.^{29, 32, 40, 54} A panel study of 28 countries that moved from global budgets to DRG-based funding reported a reduction of 3.5 percent in average length of hospital stay.³²

The evidence regarding ABF's effect on technical efficiency (cost per admission) is mostly positive.^{31, 55} One study compared data from 729 hospitals in Norway, Sweden, Finland and Denmark and concluded that the introduction of ABF in Norway improved hospital efficiency between three to four percentage points.³¹ Similar results regarding technical efficiency were observed in Portugal.⁵⁴

These results, however, are not undisputable. A different Norwegian study of 184 hospitals reported significant disparities in technical efficiency, although the study was not able to directly attribute the discrepancies to ABF.⁵⁶ Similarly, research from Austria found ABF had no effect on technical efficiency.⁵⁴ No positive impact on efficiency was observed in the U.S.⁴¹

Other researchers have observed that ABF has had a positive effect on efficiency insofar as activity has increased and wait times have been reduced.^{31, 55} Equally uncertain is whether ABF results in greater cost efficiency (the level of outputs compared to the total expenses), with some research indicating that this may not be the case.^{31, 55} Improvements in efficiency may depend on the funding system in place prior to the introduction of ABF, thus, when global budgets precede ABF, technical efficiency appears to improve, although this cannot be taken as definitive because it is difficult to separate the introduction of ABF from other health system reforms that are often undertaken simultaneously.⁴¹

Access

In many countries, ABF is credited with increasing access to hospital care and reducing wait times for acute care.^{30, 31, 34, 36, 44} An OECD study compared countries with and without wait times for elective surgery and found that countries are less likely to have excessive wait times if they remunerate hospitals using ABF and pay physicians on a fee-for-service basis.⁵⁷ However, this benefit may take some time to be fully realized. A study of hospitals in Norway observed that the number of patients waiting for elective treatments only started to decline two years after the introduction of ABF.⁵⁴

Increased access to hospital care may not be equal for all patients, and risk selection is a legitimate concern.^{15, 58, 59} In this context, risk selection refers to the practice of preferentially admitting those patients whose expected costs are less than the remuneration amount. For example, hospitals may limit access to care to patients whose cost of care are expected to exceed the funding amount, or they may preferentially triage those patients whose costs are expected to be low relative to ABF funding.^{15, 58} However, this hospital strategy would require hospitals to have an in-depth knowledge of their patients' expected costs (which is not always the case in Canadian hospitals).

Risk selection of costly patients by hospitals is viewed as an adverse outcome in terms of equity of access. To minimize the chances of hospitals employing risk selection, thoughtful design of funding systems is required. For example, providers treating patients with costly pre-existing comorbidities should be appropriately remunerated, and hospitalization rates among different socioeconomic groups monitored over time.

Another consequence of ABF that is important to consider in the Canadian context relates to changes in geographic access to healthcare services. Geographic access to hospital services is closely monitored in many countries that have implemented ABF.¹⁴ The incentives that drive economies of scale may lead to a concentration of some hospital-based services in urban centers. This concentration might be desirable when it leads to improved clinical outcomes, such as in cases of specialized care, but it may also reduce hospital capacity in other clinical areas.^{3, 14}

For some countries, with a small geographic area, a concentration of services with associated increases in efficiency may be a desired outcome of implementing ABF. For countries like Canada, with a large geographic area that is sporadically populated, further concentrations of services away from rural locations can result in an increase of equity of access problems. Decreases in geographic access have been correlated with socio-economic status, where patients that have lower socio-economic status make fewer longer journeys to access healthcare services and have a higher prevalence of chronic diseases.⁶⁰

Monitoring of Hospital Quality

The biggest criticism levelled against ABF is that the incentive to lower costs threatens the provision of safe and high quality hospital care. The empirical evidence does not appear to bear this out. Older, U.S.-based studies have reported that ABF does not affect mortality, nor does it affect quality indicators for six chronic diseases.⁶¹⁻⁶³ Other U.S.-based studies reported that while patients were less stable after discharge, processes of care improved.^{64, 65}

More recent evidence from the U.K. and European countries comes to a similar conclusion.^{66, 67} One study reported no association between the adoption of ABF and mortality, while a separate study found a weak association with lower mortality.^{32, 66, 68} Although hospitals lack incentives to address avoidable re-hospitalizations under ABF, recent empirical work suggests ABF may encourage hospitals to provide higher quality care to reduce costly complications or readmissions (since re-hospitalizations are often unprofitable).⁶⁹

An additional U.S. study showed that despite reductions in average length of stay, readmission rates were not significantly impacted.⁶⁵ However, evidence from the U.S. also suggests that some of the cost containment pressures created by ABF can impact quality for patients in hospitals that are not economically well situated, though this result has not been replicated in the existing European literature.⁶⁵

From another perspective, there are studies that report an association between patient satisfaction and the implementation of ABF.^{15, 44} A study of patient satisfaction with hospital care after the implementation of ABF in Norway found that patients' satisfaction with hospital care increased due to reductions in waiting times.⁷⁰

ABF has been associated with improved use of clinical best practices in some instances.^{47, 62, 71} Due to concerns regarding hospital quality associated with the implementation of ABF, some countries have implemented quality monitoring efforts.³⁶ Germany established a national hospital quality monitoring system at the same time as it introduced ABF.³⁴ France plans to monitor hospital acquired infections, transfusion accidents and serious adverse events reporting.³⁴ The country is also using the same clinical and administrative data used to support its ABF policies for quality improvement programs within its hospitals.⁷²⁻⁷⁴

Weaknesses

The weaknesses associated with ABF generally fall into four categories: higher overall spending, data and reporting requirements, defining funding amounts, and up-coding.

Higher Overall Spending

ABF is associated with higher overall hospital spending.²⁹⁻³¹ While ABF may reduce the costs per patient, the increase in volume consumes potential savings for the healthcare system. This is supported by a study of 28 countries that found that the introduction of ABF as the main hospital reimbursement model was associated with an increase in total per capita healthcare spending.³²

Data and Reporting Requirements

There are significant demands on the intensity of information required to manage ABF. Detailed information regarding healthcare services provided to patients, the related (and unrelated) costs of providing these services, and the attribution of hospital services to patients are needed on a timely and accurate basis. Each of these three sources is required to: define providers' 'products,' determine their 'prices' and lastly, to administer the transactional system between the providers and the funder (the province).

One of the most important sources of data to manage ABF for hospitals is the detailed clinical, demographic and administrative data collected from the patient's chart. With the exception of Quebec, all hospitals in Canada 'abstract' this information from the patient's chart and electronically report it to the Canadian Institute for Health Information's (CIHI) Discharge Abstract Database (DAD). CIHI also maintains and distributes the rules and methods for what type of information is to be abstracted from the patient's chart.

Another critically important source of data is the hospital's management reporting systems (financial and statistical reports). These department-level financial and statistical reports provide a summary of expenditures and utilization in each department. Department-level expenditure reports are a key source of information that allows hospitals to determine where their spending occurs and where

efficiencies may be found. CIHI maintains and distributes the rules for how these data are collected in the Standards for Management Information Systems in Canadian Health Service Organizations (MIS Standards).⁷⁵ In all provinces, except Quebec, standardized financial and statistical data are collected from healthcare providers and reported to provincial ministries of health (Quebec has an independent system).⁷⁶

A third important source of data is patient-level cost data. The costs associated with delivering patient care are critical elements to informing hospitals' response to financial incentives and provincial ministry's determination of funding amounts.⁷⁷ Internationally, countries address cost data in different ways. U.S. hospitals, for example, collect extensive patient-level charge data (the 'charge' to patients for the services provided).⁷⁸ In France, the lack of transparent cost data has limited the country's ability to identify efficient providers and differences in clinical practices.²⁹ When the U.K. introduced ABF, it developed – and incurred considerable costs for – a system to systematically monitor changes in hospital activity, collect patient-level cost data, survey data quality, and manage service contracts with hospitals.^{79–81}

Defining Funding Amounts

Setting the funding amount for hospital care is critically important for creating incentives around the desired behaviour of hospitals. If the funding amount is too low, even the most efficient hospital will not be able to adjust their cost structure accordingly (and some may be motivated to cut corners on care). If the funding amount is too high, it will create incentives to deliver unnecessary and inappropriate care.^{36, 82}

A study of ABF in five countries, all of which use average costs as the basis for determining the funding amount, criticized the use of average cost on a number of grounds, including:^{29, 31, 83}

- ❖ Encouraging the provision of care that is financially unsustainable or medically inappropriate,
- ❖ Encouraging convergence to the mean rather than improvements in performance, and
- ❖ Not reflecting the true value of outputs from a societal perspective.

Consequently, matching the funding amounts to the objectives of ABF is viewed as a critical element of balancing the incentives for efficient care versus those for unnecessary care.

Canadian hospitals, unlike their U.S. counterparts, do not keep detailed activity logs because they do not create invoices, so there is no charge data generated naturally as a by-product of care. Canadian systems have been designed to support hospital operations (in a standardized approach) and meet financial accountability requirements, not to assess the costs of services.⁷⁷ Consequently, the lack of accurate cost data may hinder provinces seeking to implement ABF and policymakers will struggle to set funding amounts (i.e., prices) that properly represent the cost of efficient producers in their respective province. A sample of hospitals in B.C., Alberta and Ontario (and soon Nova Scotia) collects this type of detailed cost data.

In Canada, CIHI calculates Resource Intensity Weights (RIW) based on a sample of patient level cost data. These values are representative of the average cost of hospital care, and do not represent the cost of efficient producers in their respective province or take into deliberation targeted volumes. Consequently, armed only with RIW, policymakers in provinces seeking to implement ABF will struggle when determining 'prices.'

Up-coding

A particular concern associated with ABF is the incentive it creates for providers to ‘game’ the funding system by manipulating hospitals’ clinical data, a practice commonly referred to as up-coding.^{30,40} Up-coding is characterized by the inappropriate addition of marginal or non-existent comorbidities to increase a patient’s classification to one associated with a higher funding amount. Such practices are well-documented in the U.S., U.K., Sweden, the Netherlands, and Australia.^{84–89}

However, the risk of up-coding is not consistent across countries and may be related to the design and operation of the patient classification system, market characteristics (e.g., the existence of for-profit hospitals), or the detection methods employed for prevention.^{29,89} There are fewer opportunities for up-coding in systems where:²⁹

- ▼ There are no for-profit providers,
- ▼ Remuneration is independent of coding processes,
- ▼ The classification of a patient takes place before discharge,
- ▼ There are less opportunities to change a patient’s classification, and
- ▼ Classification criteria are aligned with clinical practices.

Confirmed instances of up-coding are actively prosecuted in the U.S. (considered fraud in the publicly-funded Medicare program).⁹⁰ Penalties for hospitals can involve fines (up to \$10,000 for each fraudulent claim). Penalties for individuals can involve exclusion from future reimbursement from Medicare, and imprisonment up to ten years.⁹⁰ A national database was also established (available online), listing providers who have been convicted of fraud and excluded from Medicare reimbursement.⁹⁰

The U.S. has employed seven methods to reduce the risk of up-coding (three developed by the Centers for Medicare and Medicaid).⁸⁹ In contrast, other countries adjust incentives to attempt to minimize the risk of up-coding by focusing penalties on institutions rather than individuals. For example, in Norway, funding to providers stops if up-coding rises above an established level.⁹¹ Australia has six methods and focuses on external audits and peer review of the system to mitigate up-coding.⁸⁹ The Dutch employ an internal control system that includes mechanisms such as a Validation Module and a declaration by the hospital board.⁸⁹ Both Germany and France conduct audits on hospital records.³⁵

There is mixed evidence on the effectiveness of the various controls used to mitigate up-coding. One study indicates that performing regular audits and increasing the amount of money spent on detecting fraud leads to a drop in improper payments and up-coding.⁸⁹ Other research has shown that external review processes make more mistakes in DRG classification than hospitals due to unqualified staff.⁹² However, between 1996 and 2004 the U.S. was able to decrease up-coding from contributing an estimated 14 percent of total payments to 5.2 percent.⁸⁹

Regardless of the system, sophisticated methods and audits are seen as a necessary component of any ABF system to maintain the integrity and validity of data used for hospital funding.^{93,94} At present, no such ongoing comprehensive audit or monitoring system has been developed to support ABF applications in Canada, nor have any provinces released policies regarding penalties for up-coding. Perhaps discouragingly, past studies on the quality of CIHI’s DAD data has revealed that Canadian hospital have also up-coded their data, even without the strengthened financial incentives of ABF.^{95,96}

Activity-Based Funding in Post-Acute and Community-Based Care

According to the literature, ABF is best suited for acute services, where patients' episodes are relatively easy to observe.^{31, 97, 98} Moreover, funding hospitals on the basis of the number and characteristics of their patients is most easily conducted in acute care settings where patients' costs are largely determined by their diagnoses and procedures. In contrast, the factors describing the intensity (and appropriateness) of non-acute care services are less developed and face considerable measurement challenges.³¹

However, ABF is being adapted to fund non-acute care, such as long-term care, mental health, continuing care, inpatient rehabilitation, and ambulatory care. Funding these activities is not as systematic across providers or countries as it is for acute care. Without a well-established patient classification system, like the DRGs in acute care, these systems must be developed and reflect the health systems' objectives for patient care. Challenging these efforts even further is the lack of accurate patient-level data upon which these systems can be developed.^{97, 98}

The following sections will explore some of the ways in which countries have adapted ABF methods to fund continuing care, inpatient rehabilitation, long-term care, home care, ambulatory care and mental healthcare.

ABF in Continuing Care

Complex continuing care refers to the provision of continuous, hospital-based specialized medical care.²⁴ Care for these patients is typically provided for an extended period of time, commonly for illnesses or disabilities that require skilled or technologically-based care, such as a ventilator.²⁴ In some provinces, continuing care patients are referred to as extended, auxiliary, or chronic care patients.²⁴

ABF for complex continuing care is fundamentally different from ABF in acute care. Whereas in acute care hospitals are remunerated for each hospitalization, this is not the case in complex continuing care. In complex continuing care, providers are remunerated for each day of stay (per diem); however, the amount of funding for each patient is based on the clinical and functional characteristics of the patient (collected using the Resident Assessment Instrument Minimum Data Set 2.0 tool (RAI MDS 2.0)). The per diem funding amount is intended to fairly compensate providers for the provision of care while creating incentives to do so efficiently.

Policymakers see several benefits of introducing ABF methods into continuing care settings. ABF methods for complex continuing care provide opportunities to align funding with patient characteristics, reduce unwarranted variation in costs, and monitor care quality.²⁴

One study comparing the effects of funding method on the provision of physical rehabilitative therapy to nonelderly patients of nursing homes in the U.S. and complex continuing care patients in Ontario found that patients whose care was paid for by providers willing to spend more received more therapy.⁹⁹ While this may not be a surprising result, there were variations according to funding type. Patients whose care was insured privately or under Medicare's cost-based program received more access to therapy as well as more time per treatment compared to Medicare's patient-specific case-mix funding method.⁹⁹ The study also found that global budget funding was associated with increased access compared to U.S. patients, but a lower average therapy time.⁹⁹

ABF in Inpatient Rehabilitation

Inpatient rehabilitation provides patients with a combination of intensive, hospital-based rehabilitative and complex medical services.²⁴ Inpatient rehabilitation may occur within acute care hospitals or specialized rehabilitation hospitals and involves a combination of medical and rehabilitative professionals.²⁴ Average lengths of stays in inpatient rehabilitation range from 10 days (stroke) to 90 days (spinal cord injury).²⁴

There are two examples of inpatient rehabilitation being classified (or funded) on an episodic basis. The first example is the U.S.'s Medicare system. Applying Medicare's Case Mix Group (CMG) case mix system, patient's episodes are uniquely assigned to case mix groups on the basis of their cognitive and physical function. Hospitals then receive remuneration according to which CMG patients are assigned to. The second example is CIHI's Rehabilitation Patient Groups (RPG), where patients are similarly assigned to RPG case mix groups based on their cognitive and functional status (while no province applies RPG for funding episodes of inpatient rehabilitation, Ontario systematically collects and submits this type of data to CIHI's National Rehabilitation Reporting System).¹⁰⁰

Evidence from the U.S. concludes that the introduction of ABF for inpatient rehabilitation has been associated with reduced episode costs and lengths of stay, but its implementation has had mixed effects on access to care and quality.¹⁰¹⁻¹⁰⁴ There is some evidence that the quality of rehabilitative care is subject to market competition forces, but evaluating providers in terms of quality of care is difficult.^{104, 105}

ABF in Long-Term Care

Long-term care (LTC) refers to facility-based post-acute care that provides personal support and physical, social and health services.²⁴ Typical patients of LTC have complex medical needs that cannot be accommodated in their home, or in supportive living settings. LTC settings integrate health services and accommodation into a single setting and provide registered nursing care as well as other care providers.²⁴ In Canada, LTC is provided by a mix of public and private providers. LTC can also be referred to as nursing home, intermediate care home or residential care facility.²⁴

Similar to the approach applied to funding complex continuing care, ABF for LTC is based on a per diem amount. As in complex continuing care, there is little incentive under this funding method to discharge patients to more appropriate or less costly settings. Instead, providers try to reduce their costs below the per diem funding amount. Low-cost patients, therefore, may not be discharged from LTC as expediently as possible.

Case-mix adjusted funding for LTC is a common approach in the U.S. and Australia.²⁴ In the U.S., the case-mix system is known as resource utilization groups (RUG) and distinguishes between rehabilitative services and medical conditions.¹⁰⁶ The relative funding amounts for the different RUG groups are known as case mix indices (CMI) and emulate per diem costs of long-term care patients.¹⁰⁶ CMIs are based on measures of staff time intensity, such as nursing or therapies.^{106, 107} This type of ABF is also being adopted gradually in Alberta and is proceeding in Ontario (discussed in more detail below).

The introduction of ABF for LTC in the U.S. has been adversely associated with cost-efficiency, but findings are mixed with regard to quality of care.¹⁰⁸⁻¹¹⁰ With for-profit providers, ABF has been associated with a decrease in nurse staffing levels. This is concerning considering that staffing levels are often positively related to quality of care.¹¹¹⁻¹¹³ With public providers, the evidence regarding the impact of ABF on quality of care is mixed.^{111, 114-116} Some evidence suggests that competition between providers is associated with higher quality measures.¹¹⁷⁻¹¹⁹ ABF for LTC has been associated with a reduction in

rehabilitative services and with more substantial effects for private providers; however, there is mixed evidence regarding changes in access to long-term care for some patient types.^{101, 110, 120} Alberta and Ontario are partially using ABF for LTC funding.²⁴

ABF in Home Care

Home care describes the array of services delivered to patients in the home and includes personal residences and supported living facilities.²⁴ Care can typically include assistance with daily activities and may include nursing, therapies, dietetics or social work.²⁴ The goal of home care is to maintain the ability of patients to live independently, to avoid acute care hospitalizations, and is intended to delay hospital-based care or long-term care.²⁴

ABF for home care is widespread in the U.S. even though the evidence regarding its effects on effectiveness and quality are mixed. A well-documented example of ABF for home care appears in the U.S. as a benefit provided by Medicare and is funded on a 60-day episode basis.¹²¹ Home care episodes can be renewed for additional 60-day periods.¹²¹ A special outlier payment also exists to take into consideration patients who have the most expensive care needs.¹²² The episode payments are adjusted for the health conditions of the patient (case-mix adjustment), as well as geographic differences in wages.¹²²

Medicare introduced ABF for home care in 2002. Shortly thereafter there were closures of home healthcare providers and fewer entrants into the market than there were prior to ABF.¹²³ This effect was not uniformly reported across the country, with some regions seeing more provider closures than others. Proprietary and freestanding providers also saw more volatility compared to those that were institution-based, operating as part of a hospital or skilled nursing facility¹²³

Evidence regarding the effect of introducing ABF for home care is mixed. While ABF reduced total home care visits per episode by 16.6 percent, it had modest impacts on quality, suggesting that providers improved efficiency.¹²⁴ However, the quality of care for some conditions did suffer. Patients with wounds, incontinence, and cognitive or behavioural conditions experienced a reduction in treatment rates.¹²⁴ Another study observed that ABF had no effect on volume of visits or quality of care but that providers were better at holding increases in per-visit cost below inflation.¹²⁵

Although in a very early stage, several provinces are examining options for funding home care. Alberta, for example, is currently assessing the care needs and characteristics of home care patients using the Resident Assessment Instrument for Home Care (RAI-HC). There are several advantages to using this instrument. First, the data can be submitted to CIHI for comparative purposes. Second, it is congruent with long-term care and complex continuing care datasets. Third, there is growing evidence that the data can be used as a component of clinical quality monitoring.^{126–128}

ABF in Ambulatory Care

Ambulatory care is typically delivered on an outpatient or non-admitted patient basis, and can be categorized as: day procedures, emergency care, clinics, or diagnostic and therapeutic.¹²⁹ Care can be provided in several different settings, including a physician's office, ambulatory care clinics, community centers, specialty clinics and emergency departments.

CIHI collects a subset of ambulatory care patient data in the National Ambulatory Care Reporting System (NACRS) or the Discharge Abstract Database (for a number of provinces). For example, all emergency room visits in Ontario are reported to NACRS, where other provinces report day surgery data to the DAD. The data is case-mix adjusted using CIHI's Comprehensive Ambulatory Care Classification System (CACCS). Specific groups within the CACCS classification include emergency visits, ambulatory interventions, rehabilitation and clinic visits.

Ambulatory care in Canada is reimbursed one of several ways. If the care is received at a hospital (e.g., select day surgeries), then it is covered under the hospital's global budgets. If it is received in a clinic, then it is usually covered on a fee-for-service basis to the physician and may potentially include a facility or tray fee. Depending on the kind of care and province, some ambulatory care may also be paid for privately, either out-of-pocket or third party insurance.¹³⁰

Several countries, among them Norway, Denmark and Australia, have attempted to introduce ABF for ambulatory care activities. Integral to this attempt is the development of a means of classifying patients into groups with similar care requirements, similar to DRGs.^{31, 32} Outpatient services in Victoria (Australia) are reimbursed using a case-mix system for major hospitals, while smaller hospitals are reimbursed through historically-based grants.³¹

In the U.S., Medicare's outpatient case-mix adjustments have been developed for hospital-based ambulatory care in settings such as clinics, emergency departments and critical care services. These classifications are based on similarities of procedures, rather than diagnoses, with three main types of Ambulatory Payment Classification (APC): procedures (surgical and non-surgical), medical (clinic and emergency department visits) and ancillary (e.g., radiology, immunizations).^{131, 132}

Using ABF to shift care from an inpatient to an outpatient procedure may be one objective for policymakers, however the evidence has begun to suggest that outpatient care may be less profitable for hospitals. Several studies of ABF on the income of a U.K. hospital department for different types of surgeries done primarily on an outpatient basis found that lower reimbursement rates resulted in considerable financial losses. The studies concluded that ambulatory care seemed financially disadvantageous to the department when remunerated through ABF. There was an apparent contradiction between the objectives of ABF and the need to balance the hospital's budget.^{133, 134}

ABF in Mental health

The application of ABF for mental healthcare has been limited and there is little evidence to inform policy. Despite the lack of empirical evidence, several countries, notably the U.K., are attempting to expand ABF into mental health.⁹⁸ The U.K. Department of Health has developed Care Pathways and Packages Clusters. This set of 21 'care clusters' form 'units of care' for contracting and commissioning mental health services. In this model, each cluster defines a package of care for a group of patients who are relatively similar in their mental healthcare needs and resource requirements.⁹⁸ The care clusters are located within three clinical 'super classes' that form the first step in classification: organic disease, psychotic disorders, and non-psychotic disorder.⁹⁸ Patients are then allocated to a specific cluster based on need, not on diagnosis, although patients with similar diagnoses and severity will likely be assigned to the same cluster.⁹⁸

At the same time, many countries in Western Europe have been using DRGs to fund inpatient mental health services. These systems have sometimes led to underfunding of mental health due to a lack of comprehensive reimbursement rates that do not take into account the costs associated with caring for patients with complex and chronic mental health problems.^{98, 135-137} Research indicates that case-mix reimbursement for mental health needs to take into consideration length of stay, diagnosis, degree of social support, assistance with activities of daily living, disease severity, legal status, referral source, and dangerous behaviour.¹³⁸ Without this sensitivity, ABF may lead to early discharge or exclusion of patients from treatment, similar to the incentives in acute care funding.^{136, 139}

In Australia and New Zealand, classification systems were developed and piloted for mental healthcare-but not implemented for funding purposes.⁹⁸ In the U.S., Medicaid is the main source of coverage for people with mental health issues.⁹⁸ Since 2005, Medicaid has funded psychiatric inpatient care

through ABF which calculates a per diem base rate that is then adjusted for patient and provider characteristics.^{98, 138} There are policies in place to improve patient access and maintain quality of care, including an interrupted stay policy, and there are also budget neutrality initiatives.⁹⁸

As in acute care, up-coding and over-reporting may be an issue with inpatient mental health.^{136, 139–141} Patient classification and associated funding in mental health is challenging because for many diagnoses there is no clinical consensus on which treatments are most effective. This is evident in both the Australian and U.K. system, and leads to an inability to suitably predict resource use.^{98, 142} In the U.K. it has been suggested that funding mental health through ABF could provide funding stability that has often been lacking under global budgets.¹³⁹

There are two generic case-mix systems in Canada that are used to describe mental health related hospital visits. The first is the Comprehensive Ambulatory Care System (CACCS) for ambulatory care visits. The second is the Case Mix Group (CMG) for acute inpatient admissions (used outside of Ontario for reporting mental health-related hospitalizations).⁹⁸

In contrast to other provinces, Ontario collects professional, clinical and administrative information on adult patients admitted to inpatient mental health beds. This information is submitted to CIHI's Ontario Mental Health Reporting System (OMHRS). Ontario currently uses this information for monitoring and reporting clinical activity in inpatient mental health beds. OMHRS data are collected using the Resident Assessment Instrument-Mental Health (RAI-MH) which includes data on quality indicators, outcome measures, and assessment protocols.⁹⁸ Hospitals collect data at admission and discharge, when a patient has a significant change in health status, and every three months for patients with long stays.⁹⁸

There are tentative plans to use the case-mix adjusted mental health data in ABF funding applications. Case-mix adjusting inpatient mental health data in Ontario is accomplished using the Ontario System for the Classification of Inpatient Psychiatry (SCIPP).⁹⁸ For each SCIPP group, there is a case mix index (CMI) value that is comprised of the weight of the resource use in that SCIPP group compared to the patient population.¹⁴³ The SCIPP group and CMI information are combined to form the SCIPP Weighted Patient Day (SWPD), and also takes into consideration administrative information to produce indicators for the number of patient days and the resources intensity for each episode, patient and provider.¹⁴³ The province has taken steps to try and mitigate gaming of the system by making adjustments for service interruption days and varying payments by length of stay, and will also monitor the system to insure that private providers are not practicing adverse selection.^{98, 143}

Funding Specialized Care

There is concern that ABF may not be appropriate for some types of highly specialized care or those with a small number of cases (e.g., neonatal, pediatric, or severe burn care).^{29, 97} The costs and complexity of these types of care can be difficult to estimate.

Countries have responded to concerns regarding funding complex, and often, expensive, care in one of three ways. The first is by funding intensive care (or, ICU-based care) through DRGs, which include the entire episode of care in a hospital (U.S. Medicare, Germany, selected regions in Sweden and Italy).⁹⁷ The second is to use DRGs in combination with additional co-payments to the hospital for intensive care (Victoria (Australia), France).⁹⁷ The third is to exclude intensive care from DRG funding and use an alternative form of funding such as per diems (South Australia) or global budgets (Spain).⁹⁷ However, there are policy risks to these responses. Linking the highest level of payment to the location of care may result in encouraging hospitals to deliver more complex treatment to patients who do not require them.^{97, 144, 145}

PHYSICIAN REMUNERATION AND INSTITUTIONAL FUNDING

Physicians' decisions have a pervasive and substantial influence on how healthcare systems allocate resources. However, since the focus of this report is on mechanisms for funding non-physician healthcare providers, physician payment is included in this report only insofar as it affects other providers and funding systems. For a thorough examination of principles and methods for remunerating physicians, refer to "Physician Payment Mechanisms: Overview and Options for Canada."¹⁴⁶

Physicians in Canada are primarily paid through a fee-for-service (FFS) system. FFS is a retrospective payment system that is intended to cover all costs borne by a physician plus a 'margin' for each service provided.¹⁴⁶ FFS provides incentives for physicians to increase the volume of services provided to patients. This incentive positively affects physicians' productivity, which may improve patient access.

On the other hand, this type of incentive can also lead to greater provision of services beyond those that are necessary.³ Moreover, FFS provides little incentive for physicians to consider the costs of non-physician treatments and the overall implications this has on the healthcare system.^{3, 146} Consequently, the incentives of fee-for-service for physician care may not be aligned with funding other sectors of care.

PAY-FOR-PERFORMANCE

There is no accepted international definition of pay-for-performance (P4P), which is also referred to as paying for results or results-based financing. P4P is not the same as ABF; whereas ABF remunerates based on volume, P4P remunerates for achieving pre-specified objectives, such as thresholds of quality or safety.

P4P is most commonly used as a method to link physician activity to remuneration. California has a P4P program that began in 2003 and applies to eight Health Maintenance Organization (HMO) health plans.⁴⁴ The Quality Outcome Framework (QOF) in the U.K., established in 2004, is the largest P4P program in the world. The QOF is an incentive pay program intended to reward general practitioners for how well they care for patients.⁴⁴ P4P programs are now becoming common for physician remuneration in many countries. It has been reported that as many as 19 OECD countries are using such programs to improve the quality of primary, specialty, and hospital care.⁴⁴ For primary and specialty care, most bonuses are for preventative care and management of chronic diseases.

Linking hospital CEO compensation to performance can also be considered a form of P4P. In this application, policymakers wishing to develop leadership and accountability for quality improvements at the institutional level remunerate the CEO (or equivalent) bonuses for improvements in performance. This approach is common in other areas of business; however, the evidence of the responsiveness of executive performance to financial incentives in the business world is minimal.¹⁴⁷ One study on the implications of linking executive salaries to performance in Ontario determined that, although there is increasing pressure to link performance and pay for executives, the unintended consequences of this move will be that hospitals will become less successful at directing executives towards improving beneficial services that are difficult to quantify, and hence reward.¹⁴⁸

In Ontario, the Excellent Care for All Act, passed in 2010, requires that executive compensation for healthcare providers be linked to the achievement of targets sets out in hospital's quality improvement plans (discussed in more detail in the Canadian Initiatives sections). The first year of implementation for CEO compensation was 2011-2012 and no evidence of the programs' effectiveness is yet available.¹⁴⁹

P4P can also be applied to institutional care. For hospitals, bonuses tend to be for process measures, but some exist for clinical outcomes and patient satisfaction.¹⁵⁰ In this context, P4P supplements

(complements) existing hospital funding methods and provides additional incentives for hospitals to achieve certain outcomes or results.¹⁵⁰ Process indicators of high technical quality might include rates at which patients receive beta blockers for acute myocardial infarction (AMI) or timing of preoperative antibiotics for surgical patients.¹⁴ Outcome indicators of technical quality include rates of readmission or surgical site infections. Key recommendations for successful P4P programs involve strong political, managerial, and IT support, while leaving room for innovation.¹⁵¹

Institutionally-based P4P programs are used in other countries. In Korea, the Value Incentive Programme was launched in 2007 to cover 43 tertiary hospitals.¹⁵⁰ The program focuses on two conditions, the quality of treatment for acute myocardial infarction (AMI) (with seven quality indicators) and caesarean deliveries (with 16 clinical risk factors).¹⁵⁰ Payments are made to providers based on quality improvement from the baseline at the start of the program and by 2009 providers who had high or improved performance received a one percent bonus, and performers below the baseline were penalized one percent.¹⁵⁰

In the U.S., the Centers for Medicare and Medicaid Services (CMS) developed several pay-for-performance demonstration projects in the early 2000s. As of 2005, over 112 unique pay-for-performance projects were identified in the U.S. but less than one third targeted hospitals.¹⁵² One of the programs that targets hospitals is the Premier Hospital Quality Incentive Demonstration (HQID) Project. A project that began in 2003, it provided financial incentives to almost 300 hospitals based on 35 quality measures in five clinical areas.¹⁴⁷ For each clinical area, hospitals with a composite score in the top ten percent receive a two percent bonus above Medicare payments.¹⁵² Hospitals in the second decile receive one percent and hospitals above the median are published as top performers by CMS.¹⁵²

In some jurisdictions, P4P is being integrated into ABF methods. The most prominent example is the U.S. Medicare program, where the presence of hospital-acquired conditions (HAC) is used a quality indicator (which affects hospitals' remuneration). When patients are diagnosed with a HAC, hospitals do not receive higher DRG payments.¹⁵³ Also, Medicare currently does not remunerate hospitals for unplanned readmissions.¹⁵⁴

In Canada, one region in B.C. has begun to experiment with a form of P4P in home care through a program called the Accountability, Responsiveness and Quality for Clients Model of Home Support (ARQ Model).²⁴ The Cluster Care Model that is derived from ARQ seeks to provide home support in buildings or neighbourhoods with a high density of patients in order to meet fluctuating needs.¹⁵⁵

These funding incentives are in addition to a base rate and are assigned to indicators for exceeding performance targets, including the percentage of community health area patients in clusters, the rating on patient satisfaction surveys, and the percentage of patients with needs of community health workers on a continuous basis.¹⁵⁵

The model includes performance-based funding incentives for certain objectives, such as responsiveness, system competency, patient and community focus, work life, innovation and learning, and resource management and quantity (efficiency).¹⁵⁵ Evaluation of this model found that it achieved higher efficiency (higher percentage of patients in cluster care models), greater system competency (better match between patients' needs and caregiver abilities), and higher levels of patient satisfaction.¹⁵⁵

Despite a widespread adoption of P4P methods at provider and organizational levels there are few studies that empirically measure the impact these programs have had on quality or on system-level costs.¹⁴⁷

Strengths

P4P methods targeted at preventative and public health services appear to be effective, particularly in regards to cancer screening, vaccination rates, measuring and treating blood pressure, counseling patients to stop smoking or to improve their diet. The most successful P4P programs provide additional payments for the use of these interventions by patients.⁴⁴

Evaluations of the QOF program are inconclusive as to whether healthcare quality has improved. One study analyzing asthma and diabetes data pre- and post-QOF observed that rates of improvement in the quality of care initially increased but three years after the introduction of the QOF the rate of improvement had essentially levelled-off for all conditions.^{44,156}

Some country specific examples of successful P4P initiatives that focus on quality and efficiency have been documented. In Australia immunization rates increased from approximately 76 percent to 92 percent after the introduction of P4P.⁴⁴ The Korean Value Incentive Program shows a 1.68 percent improvement in the quality of myocardial infarction care and a 0.6 percent point drop in caesarean deliveries.⁴⁴

Premier's HQID Project reported across the board improvements in quality among the hospitals participating in the demonstration project.¹⁵² However, when compared to quality improvement in non-participating hospitals from the same region, HQID hospitals outperformed non-HQID hospitals on only three of ten measures, and in the remaining seven non-HQID hospitals performed better.¹⁵² The study concludes that, taken together, there was slightly greater quality improvement in HQID hospitals (5.4 as opposed to 5.1).¹⁵²

A more recent study evaluates Medicare's Premier HQID after changes were made to the incentive structure in 2006. Incentives were added for good performance in general and across an increased range of quality measures to try to encourage quality improvement in lower quality hospitals.¹⁵⁷ The study found that, over the two phases of the project (pre- and post-2006), showed that although quality did improve in the Premier HQID hospitals, improvement rates slowed down substantially after the second phase.¹⁵⁷ Hospitals that began with very low performance indicators did not improve substantially in the second phase, nor did they have much in the way of financial incentive to do so, because they would not reach the median level of quality.¹⁵⁷ Perversely, the incentives favoured hospitals who were already above the median of quality indicators for the group of hospitals. Although these hospitals improved at the same rate as other hospitals.¹⁵⁷ Another Study of the Premier HQID program determined that initially, HQID hospitals improved over non-HQID ones, but that after five years the two groups of hospitals had practically identical scores.¹⁵⁸ The largest gains were among hospitals that were eligible for larger rewards, were already well financed, or operated in less competitive markets.¹⁵⁸

A literature review of hospital inpatient P4P programs in the U.S. found three hospital P4P programs with published studies, including the Premier HQID. According to the literature, all three programs saw marginal increases in hospital quality in at least some performance measures, but the authors noted that most studies lacked both control groups, and trend data from before the initiation of the P4P program. These study designs make it difficult to attribute improvements in quality to P4P programs.¹⁵⁹ In addition, many of the P4P programs are voluntary, with hospitals self-selecting into the program, further confusing the causality of improvements.¹⁵⁹

Weaknesses

Much like ABF, P4P programs require detailed datasets (some of it populated by information that is not routinely collected in Canada.) Detailed data collection systems place significant demands on existing hospital information systems, which may not be designed to collect data on quality indicators used by many P4P programs. For example, prescribing of beta blockers for AMI is a common quality process indicator, but this data is not collected in many hospital datasets across Canada.¹⁴ However, other outcomes measures can be generated using hospital discharge data already available.

The effectiveness of P4P methods depend on finding an optimal funding amount, the timeliness of payments, and linking the payment from P4P to the provider responsible for the performance.⁴⁴ In many instances it seems that the observed improvements in quality associated with P4P programs have not lived up to the expectations of policy-makers, with only modest, incremental and variable gains.¹⁶⁰

There is also minimal evidence on the effect of P4P programs on patient outcomes, even when hospital quality measures improve.¹⁶¹ One study found reduced complication rates for some surgical patients but there is no mention if the results were statistically significant, another study found no differences in mortality related to AMI.¹⁶¹

P4P methods are not immune to gaming. According to a 1994 study of mental healthcare in the U.S., a P4P program designed to increase outreach to the severely mentally ill population increased the documentation of such patients, but not their treatment.¹⁴⁷ Three other studies supported these results, finding that documentation, rather than use of services, improved with P4P incentives.^{151, 162, 163} Research from the U.S. also suggests miscoding and up-coding are risks under P4P.⁴⁴ Both hospitals and individual physicians engage in risk selection when reporting their outcomes for P4P programs.^{147, 164}

There is a lack of published research on the use of P4P to improve quality in continuing care. A recent review of the literature regarding P4P programs and nursing home care found little evidence supporting P4P as improving the quality or efficacy of care delivered by nursing homes, though the study had substantial limitations.¹⁶⁵ Many of the programs evaluated by this review were short-lived and did not systematically document results. It could be argued that inconsistent terminology, poor electronic databases, and minimal objective quality measures further challenge P4P programs in continuing care.

BUNDLES OF CARE

A 'bundle' is defined as the set of services or treatments provided to a patient for an episode of care. A bundle of care is intended to include all aspects of a patients' care across providers and settings, over a fixed period of time.¹⁶⁶ An example of a bundle of care is knee replacement surgery. This bundle may be defined to include pre-hospital therapies, diagnostics and imaging, the hospital-based care, supplies and equipment, associated medical and surgical fees, and different modalities of rehabilitative therapies to restore function.

Bundled payments are now being proposed as a possible remuneration method for episodes of care. In bundled payments, a single amount is used to fund the entirety of care related to a condition or event for a fixed period of time. Expenditures in excess of the funding amount are the responsibility of the various providers. Surpluses derived from expenditures below the funding amount are retained by the provider(s). This mechanism creates a financial incentive for providers to control costs below the bundled payment amount, and savings are often sought by reducing unplanned re-hospitalizations, reducing ineffective care and improving care transitions.

Bundled payments can be viewed as a generalization of DRG/CMG-type case mix systems. Whereas DRG funding systems are based on funding all elements of care that occur during the acute phase of an episode of care, bundles of care are intended to reflect all services related to a particular condition over time, including those services that occur outside of the hospital.

A proposed pilot for episode-based payment for cancer care for Medicare beneficiaries in the U.S. illustrates the concept of bundled payments. The proposed bundle covers the costs of drugs associated with the treatment (chemotherapy) and their administration for a set period of time for a specific cancer, as well as the costs of supportive-care drugs and their administration.¹⁶⁷ The proposed bundle defines the episode of treatment as one month; each subsequent month of necessary treatment would be considered an additional bundle, with an additional payment.¹⁶⁷

For bundled payments to create effective incentives, accurate, timely and linkable data needs to be collected across all healthcare settings, including hospitals, post-acute care settings and providers, physicians, and emergency departments.¹⁶⁶ In this respect, much like for ABF and P4P, clinical, utilization and cost data need to be reliable and consistently measured and reported. Whereas other funding methods described so far can operate in isolation from physician payment methods, physicians play a critical role in bundled payments. Physician's decisions influence hospital use and post-discharge setting; however, in Canada and the United States, physicians are generally funded separately from hospitals on a fee-for-service basis.

Bundled payments are currently being actively piloted as a mechanism to fund healthcare (in the U.S.). A bundled payment that rewards providers to reduce fragmentation, improve coordination and reduce ineffective care has broad appeal to many healthcare funders. Broad experimentation with bundled payments is occurring in the U.S. and, depending on the outcomes, may proceed elsewhere.

Strengths

Supporters of bundled payments advocate that bundled payments create financial incentives for coordination and integration of providers across different settings. Conventional payment methods, they contend, results in fragmented care that reduces the quality care, impairs discharges from hospitals, and reduces access to services.¹⁶⁸⁻¹⁷⁰

By creating financial incentives to reduce costs across providers and settings, bundled payments holds linked providers accountable to their peers (within the bundle) for the total cost of care (and amount) that they provide during an episode of care.

The literature describes other potential advantages of bundled payments:

- Reduces the risk of cost shifting between sectors,¹⁷¹
- Provides a possible approach to develop comprehensive and longer-term measures of quality and outcomes,^{172, 173}
- Explicit incentives to reduce readmissions due to fragmented care, and^{171, 174}
- Holds providers responsible for the consequences of fragmented care, rather than to the system at large.^{69, 171}

Weaknesses

The conditions or procedures best suited for bundled payments are characterized by clear clinical pathways, but have been explored for a variety of procedures, such as coronary artery bypass (CABG), hip fracture repair, back surgery and colectomy.¹⁷² Bundled payments may not be suitable for all types of conditions or procedures. These criteria would include procedures with low volumes, few providers of care, or conditions that have a wide range of equally credible clinical pathways (and costs).¹⁷⁵ Mental health conditions, for example, may present a challenge for bundled payments model. For complex cases, there can be a vast array of legitimate treatment modalities.

As bundled payments are a fairly new mechanism for funding healthcare, they face methodological challenges, including:

- Complex care needs may require long follow-up periods,¹⁷⁶
- Measurement challenges may induce some providers to “skimp” on the care they provide,¹⁷⁶
- Among providers, which entities should act as the ‘paymaster,’ and¹⁶⁶
- Challenges to reduce opportunities for cost shifting between insured and uninsured services.¹⁷¹

OVERVIEW OF CANADIAN INITIATIVES

As described above, the focus of the report includes some description of current healthcare funding initiatives in Canada. Here, the emphasis is on projects relevant to publicly funded healthcare in Québec (as defined by Québec). There are other ongoing funding initiatives in some provinces, such as cancer care funding, that are out of scope of this report, but are equally relevant in a fulsome discussion of healthcare funding in Canada.

B.C. Patient-Focused Funding

In 2010, B.C. fundamentally changed the methods by which acute care is funded in the province. This initiative is being led by the B.C. Health Services Purchasing Organization (HSPO) and funded by B.C.'s Ministry of Health. The HSPO is an independent entity responsible for introducing financial incentives to provide care that is effective and efficient across the province.¹⁷⁷

The HSPO was allocated \$80 million in 2010/11 and \$170 million in 2011/12 to fund a series of innovative programs collectively referred to as Patient-Focused Funding (PFF).¹⁷⁷ These programs include:¹⁷⁸

- ABF as a percentage of the budget for select hospitals,
- Emergency department pay-for-performance (ED P4P) program designed to pay hospitals to improve access to emergency care,
- Procedural Care Program to reduce wait times for specific surgeries, and
- Care Model Redesign and Quality Improvement, which focuses on implementing the American College of Surgeons' National Surgical Quality Improvement Program (NSQIP) in B.C.

The ABF program is one of the larger initiatives under the HSPO's PFF initiative. The program is designed to encourage hospitals to use existing capacity differently to perform more surgical procedures. Additional ABF payments can be the equivalent of 15% of participating hospital budgets.¹⁷⁹ Like other ABF programs, funding is based on the number and complexity of patient cases.¹⁷⁷ Twenty-three of B.C.'s largest hospitals are participating in this program.

The HSPO pays \$1,520 per inpatient RIW and \$3,040 per same day care RIW under the ABF program.¹⁷⁷ These rates are not intended to cover the full cost of adding new surgical capacity, but instead, are intended to help management, staff, and physicians maximize the use of existing capacity.¹⁷⁷ ABF remunerates health authorities on a bi-weekly basis and is adjusted quarterly based upon increases or decreases from planned levels.¹⁷⁷ For the fiscal year 2010/11 the RIW growth was capped at three percent.¹⁷⁷

The ABF program does not include:¹⁷⁷

- Cases that have not been abstracted into the Health Records System (primarily ambulatory clinics, non-admitted ED);
- Most cardiology and cardiac surgery;
- Transplants or cochlear implants;
- Newborns and maternity;
- ECTs, Cardioversions, Cystoscopies; or
- Discharges Direct from Emergency (DDFEs).

The EDP4P program is designed to create financial incentives for hospitals to improve access to emergency care by reducing emergency department wait times. Participating hospitals receive funding based on the number of patients meeting established wait times targets.¹⁷⁷

The Procedural Care Program is designed to reduce wait times for surgical procedures with the longest waits. Under this program, the HSPO contracts with participating health authorities for an additional number of procedures at a specified price.¹⁷⁷ The program targets day surgeries, including: bladder surgery, fallopian/ovarian surgery, abdominal hernia repair, shoulder surgery, breast reduction, foot/ankle surgery, knee arthroscopy, cholecystectomy, hand/wrist surgery, and nasal surgery.¹⁷⁸ The program also allows individual health authorities to select procedures for wait times reductions in their respective regions, this has previously included otolaryngologic, urologic and gynaecologic procedures.¹⁷⁸

The Care Model Redesign and Quality Improvement program of the PFF initiative includes \$10 million over two years for the B.C. Patient Safety and Quality Council to implement NSQIP. NSQIP is an American risk-adjusted, outcome-based program that measures and reports surgical quality. According to the HSPO, the data collected from this program can be used to help increase patient satisfaction, reduce median length of stay and reduce postoperative mortality rates.¹⁷⁸ NSQIP was implemented in 15 hospitals in 2010/11, with plans to expand to an additional seven in 2011/12.¹⁷⁸

BC Provincial Renal Agency

Funding for patients with kidney disease in B.C. is allocated through an agency that is separate from the five regional health authorities, falling under the purview of the one health authority in B.C. with a provincial mandate. The B.C. Provincial Renal Agency (BCPRA), under the Provincial Health Service Authority (PHSA) has the mandate to plan, coordinate and fund services for patients with chronic kidney disease (CKD) known to nephrologists and registered as CKD patients in the provincial database. This includes all dialysis patients and those not on dialysis but with evidence of CKD as defined by evidence of structural or functional kidney damage.

In a functional partnership with health authority renal programs (HARPs), the BCPRA has an annual budget of approximately \$157.5 million, allocated by the B.C. Ministry of Health on a per patient/per year basis to BCPRA via the PHSA, which covers chronic care services for these patients.¹⁸⁰ Each of the HARPs has an accountability and responsibility to deliver care to the patients based on provincially developed guidelines and standards of care, using resources available within the health authority.

Funding from the BCPRA is allocated to the HARPs based on a PFF method, where BCPRA ensures appropriate funding for personnel services, excluding physician care. The funding method is based on a multi-disciplinary clinical care model and integrates best practices, thus the funding provides an accurate assessment of the renal programs' expected costs. It recognizes all variables that impact the costs of services (role and time allotment for all care providers at all aspects of clinical care). Applied provincially, it ensures that all patients, regardless of treatment location, have access to appropriate resources.

BCPRA pays directly for vendor contracts, medical and surgical supplies for community dialysis units, medications, information system costs, and special projects and initiatives.¹⁸⁰ Renal funding method dollars are allocated directly from the BCPRA to each health authority for services related to patient care, including labour costs for chronic kidney clinics and peritoneal dialysis clinics, hemodialysis treatments and follow-up care, and data entry into the Patient Record/Registration and Outcome Management Information System (PROMIS).¹⁸⁰

To project patient volume, the BCPRA uses PROMIS data from the last five years, including patient age, gender, home address, and treatment modality. From this information, the BCPRA calculates the treatment rate per million for each health authority, age and gender group. Regression analysis is used to analyze trends in historical treatment, which are then used in conjunction with current population estimates to predict patient numbers. The estimated patient numbers per modality are then multiplied by averaged costs of personnel services and consumables, and a total funding requirement is delivered as the budget for the year. Bi-weekly payments are provided to the HARP for the first six months based on these funded levels. Periodic reports are also provided, which detail HARP's actual activities (by modality and facility) as compared to that budgeted. A mid-year reconciliation between original funded levels and revised projection for the year is done, and subsequent bi-weekly payments are adjusted as necessary.

According to the BCPRA, the funding method accounts for all the variables that effect the delivery of renal services, provides an accurate assessment of services based on costs of hourly wages, provides incentives to promote early intervention and patient self-care, promotes best practices, and assures that patients have access to needed resources.¹⁸¹

Cardiac Services BC

Cardiac Services BC (CSBC) is an agency of the PHSA responsible for planning, coordinating, monitoring, evaluating and funding adult tertiary cardiac services, such as those relating to the treatment of heart disease, blood vessel disease and stroke, across the province in collaboration with senior administrators and physicians in the other health authorities.¹⁸² The clinical services CSBC funds include: cardiovascular disease-related treatment services and secondary prevention.¹⁸³

The 2010-2011 operating budget for CSBC was approximately \$170 million, an amount distributed to health authorities for delivering cardiac care. Tertiary cardiac procedures are provided in five centres: St. Paul's Hospital and Vancouver General Hospital in the Vancouver Coastal Health Authority, Royal Jubilee Hospital in the Vancouver Island Health Authority, Royal Columbian Hospital in the Fraser Health Authority and Kelowna General Hospital in the Interior Health Authority.

There are two components to the cardiac services funding method in B.C. The first is the component related to projecting the demand of cardiac services, which uses a modeling approach that incorporates demographic factors, prevalence of disease and cardiac services utilization profiles of B.C. residents. Utilization of cardiac services is then projected into future periods. The second component is related to describing the cost of different cardiac services in B.C.'s hospitals. Drawing from activity-based costing information from B.C. and Ontario, the variable direct patient costs of hospital-based cardiac care are estimated. The cost information incorporates patient acuity differences, supply cost changes, introduction of new technologies, devices and/or drugs, and efficiencies from provincially sourced services. Estimates of direct costs are used as the funding amount for hospitals.

Funding rates and volumes are established in advance and funding is recovered from health authorities for any procedures not delivered.¹⁸³ Expenditures for cardiac services are managed through service level agreements between CSBC and hospitals as well as monthly monitoring of wait lists and procedure volumes at the Cardiac Services Steering Committee. Procedure volume projections are reviewed annually against utilization, regional utilization variation corrections, changing indications for procedure use, acceptance of new technologies, and corresponding wait times.

In a final step, funding is allocated to health authorities based upon a "rate times volume" funding method.

Activity-Based Funding for Long-Term Care in Alberta and Ontario

Alberta funds long-term care (LTC) through an ABF method and has done so in some form (i.e., per diem) since the 1980s. The funding method is being phased-in over a six year period. The program started with public providers in 2010 and will be expanded to include private providers by 2016.²⁷

Alberta expects that ABF will result in consistent, comparable and transparent information regarding clinical indicators and resource consumption for LTC patients.²⁷ Alberta also expects ABF will better align the provision of services with patients' care needs.²⁷ Policymakers expect that ABF will hold several advantages for LTC providers, including establishing predictability in funding, rewarding efficiency and quality, and promoting better health outcomes.²⁷

The Alberta LTC ABF formula for providers has both a fixed and variable component. The former relates to a flat bed-based funding amount. This approach creates an incentive for providers to reduce occupancy rates, since having patients in beds reduces profit margins. Therefore, to mitigate this incentive, the ABF formula includes a low-occupancy funding adjustment.²⁷ The latter component relates to the services that vary according to the number and needs of patients with a given provider.²⁷

In 2011, Alberta introduced quality incentives funding (QIF) into its LTC ABF formula.²⁷ The QIF is designed to improve quality and best practices, rewarding providers that are patient-focused, sustainable, dynamic, equitable and evidence-based.²⁷ There is a three phase plan to implement the QIF. Phase one involves providers submitting their respective plans and progress for quality initiatives and includes the follow elements:²⁷

1. Plan and report for a quality initiative based on RAI quality indicators,
2. Plan and report on medication reconciliation on admission and standardized medication review process,
3. Plan and report on opportunities for improvement based on 2010 LTC Family Satisfaction Survey,
4. Staff immunization rates, and
5. Patient immunization rates.

Phase two develops outcome measures, such as the risk-adjusted RAI Quality Indicators.²⁷ Phase three will potentially introduce a quality recognition program.²⁷ For 2011-2012, providers are eligible to earn 0.2 percent of their operating budget in QIF.²⁷

Ontario is in the stages of a long-term transition to a (portion of) case-mix adjusted funding method for LTC. The LTC budget for Ontario in 2008-2009 was \$3.1 billion, or about eight percent of the total health budget for that year.^{184, 185} Since 1993, the Ontario Nursing and Personal Care (NPC) funding allocated to LTC providers was adjusted for patient acuity using the Alberta Resident Classification System.¹⁸⁶ In 2005, the Ontario MOHLTC conducted a pilot project with select LTC providers to transition to the RAI-MDS 2.0 assessment tool; this is now being implemented with all LTC providers.¹⁸⁶

The RUG-III methodology will be used to adjust NPC funding for LTC providers.¹⁸⁷ Funding changes based on the new case-mix will be phased in for selected providers from April 2010 until March 2013.¹⁸⁸ It is anticipated that the final group of transitioning providers will begin by April 2012 and be fully transitioned by March 2015.¹⁸⁸

Outpatient Renal Dialysis

In the U.S., Medicare traditionally funded renal dialysis through the outpatient prospective payment system, which paid a fixed amount for a limited bundle of routine services, known as a composite rate (CR).¹⁸⁹ Studies have found weak evidence linking case mix to provider costs for services included in the CR, which did not include the cost of drugs.¹⁸⁹ By 2005, 40 percent of the total cost of dialysis care was for separately billable items.¹⁹⁰ In response to this imbalance, the CMS was tasked with developing an expanded prospective payment system “bundle” for outpatient dialysis services that included as many drugs and diagnostic procedures provided to patients as possible.¹⁸⁹

In 2011 the CMS introduced an expanded End Stage Renal Disease (ESRD) bundle to replace the existing CR. The expanded bundle covers the items from the CR, as well as related drugs and lab tests.¹⁹¹ This is an example of episode-based payment, insofar as a single price covers all services involved in an episode of care.

The new bundle is designed to reduce the cost of providing ESRD services while maintaining or improving patient care.¹⁹¹ By bundling the services and the drugs into one payment, incentives to overuse previously profitable drugs that were billed separately has been reduced.¹⁹² This may improve patient outcomes, as the overuse of some dialysis drugs can also cause harm to patients.^{190, 192}

A Quality Incentive Program (QIP) associated with ESRD was also mandated, and represents CMS’s first non-demonstration P4P program.¹⁹³ According to the CMS, the program will result in pay deductions to providers of dialysis that do not meet performance standards set for specified measures.¹⁹³ The indicators for poor quality performance for 2012 include two anemia management metrics (also designed to address the overuse of drugs) and one measure relating to dialysis dose.^{192, 193} A reduction in total payments of up to 2% for poor performance could be expected by providers.¹⁹³

CONCLUSION

Budget pressures are pushing policymakers across Canada to re-examine how they are funding healthcare services. Striving for better value, greater attention is being focused on quality and outcomes.

Canada is not alone in this endeavour, as many countries' publicly funded healthcare systems are aiming to achieve the best outcomes for the lowest possible cost. However, for Canada's policymakers, there is a rich body of evidence and experiences from which policymakers can draw to inform their understanding of different healthcare funding methods.

The purpose of this report was to synthesize the body of evidence and experiences regarding the public funding of health, and to report it from a Canadian perspective. The report provided an overview of different methods used to fund healthcare services across the spectrum of care, from acute to community-based care. The respective strengths and weaknesses of these methods were detailed, and the contrast exposed gaps in Canada's data collection systems' comprehensiveness.

Where possible, this report provided specific examples of the different rules and objectives countries use to fund their healthcare services. These examples were taken from the published and grey literatures; a comprehensive reference list is also provided. Finally, this report provides an overview of several different funding initiatives currently underway across the country.

The objective of this report was not to critically appraise the different funding methods, thus it does not offer any recommendations regarding funding healthcare in Canada. However, a companion report provides detailed information relating funding of Québec's social and healthcare system to the methods described in this report. In this context, the companion report provides a number of recommendations regarding funding healthcare in Québec.

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APPENDIX I: ACRONYMS

ABF	Activity-based funding
AMI	Acute Myocardial Infarction
ARQ-Model	Accountability, Responsiveness and Quality for Clients Model of Home Support
B.C.	British Columbia
CACCS	Comprehensive Ambulatory Care Classification System
CCRS	Continuing Care Reporting System
CIHI	Canadian Institutes for Health Information
CKD	Chronic Kidney Disease
CMI	Case Mix Index
DRG	Diagnosis Related Groups
EDP4P	Emergency Department Pay-for-performance
GDP	Gross Domestic Product
HAC	Hospital Acquired Conditions
HARP	Health Authority Renal Program
HBAM	Health-Based Allocation Model
HMO	Health Maintenance Organization
HQID	Hospital Quality Incentive Demonstration
HSPO	Health Services Purchasing Organization
IT	Information Technology
LIHN	Local Integration Health Network
NSQIP	National Surgical Quality Improvement Program
OMHRS	Ontario Mental Health Reporting System
P4P	Pay-for-performance
PPF	Patient Focused Funding
QOF	Quality Outcome Framework
RAI-HC	Resident Assessment Instrument for Home Care
RAI MDS	Resident Assessment Instrument Minimum Data Set
RAI-MH	Resident Assessment Instrument-Mental Health
RIW	Resource Intensity Weights
RUG	Resource Utilization Groups
SCIPP	System for the Classification of Inpatient Psychiatry
SWPD	SCIPP Weighted Patient Day
U.K.	United Kingdom
U.S.	United States
WCD	Weighted Client Days