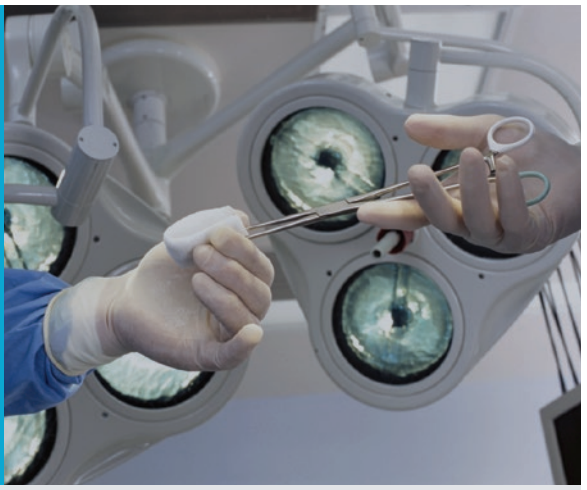
Technical paper 1

BETTER ACCESS TO SURGERY

An expanded activity-based funding program



Expert Panel
for Patient-Based
Funding

Québec

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SUMMARY

The Expert Panel for Patient-Based Funding was mandated to propose concrete initiatives for the application of this funding model in Québec's health care system. The expansion and permanent implementation of the Access to Surgery Program (ASP+) is one of three priority areas proposed by the Expert Panel.

The surgical sector has already had experience with activity-based funding under the Access to Surgery Program (ASP), implemented in Québec in 2004-2005 to reduce surgery wait times. The program has produced interesting results in recent years. However, in its present form, it has reached a certain limit in its ability to improve access to care; efficiency gains are limited because it is too partial; and it is imperative that it be linked to quality objectives.

This has prompted the Expert Panel to recommend expanding the Access to Surgery Program in 2014-2015 and to suggest that the ASP+ be one of the priority areas for implementing patient-based funding in Québec.

The objective of the Expert Panel's recommendations is to further develop the Access to Surgery Program so that it is more closely aligned with the main orientations of a high-performing health care system, namely, access to care, appropriateness and quality of care, equitable and efficient service delivery.

The approach recommended to achieve this objective is built around the following central points:

— include quality and access to care considerations in the funding formula;

— ultimately, fund the entire care pathway and allocate funding based on a patient's entire care pathway rather than on each of its stages;

— extend the scope of the program to cover almost all surgical output;

— develop a national surgery strategy to make actions more effective and coherent;

— adopt a pragmatic approach and implement the ASP+ gradually, using existing conditions and data initially and introducing further changes once the necessary conditions are in place.

❑ Main parameters of the ASP+

The ASP+ differs from the ASP in a number of respects.

■ Clinical aspects

The ASP+ covers all surgeries, whereas the ASP covers only additional volumes relative to historical data.

— This allows institutions to improve their management of both clinical and administrative services and to prevent certain adverse effects, such as priority being given to certain types of surgeries at the expense of other surgeries.

Some surgeries that were excluded from the ASP, such as cardiovascular surgeries, are included in the ASP+.

A minimum production threshold of 1,000 weighted cases per year is used to determine institutions' eligibility for the ASP+, whereas the ASP does not set any minimum surgical production volume in order for an institution to be eligible.

— A minimum production threshold is proposed to avoid undermining service delivery in small institutions that are less suited to this funding method.

— Institutions that do not satisfy this criterion will continue to be funded using an historical approach, but performance mechanisms that include the dimensions of quality and appropriateness may be introduced for these institutions.

Ultimately, funding should cover the patient's entire care pathway, unlike the ASP, where only surgery as such is funded, excluding certain types of care provided "upstream" and "downstream". To ensure a smooth transition, patient pathway funding will, however, be phased in in three stages:

— funding for the surgical care episode – from admission to discharge from hospital[1] (simulation in 2014-2015 and introduction of funding in 2015-2016);

— funding for the inpatient care pathway – from preadmission to discharge from hospital (2016-2017);

— funding for the full care pathway – interinstitutional (2017-2018).

Lastly, to promote appropriateness and quality of care, the concepts of quality and access to care will be taken into account in the tariffs, which is not the case with the existing ASP.

■ Financial considerations

Knowing the costs per case is crucial in patient-based funding. It is the basis for setting tariffs. Initially based on the average cost of each group of surgeries, tariffs will gradually take the concept of quality into account.

— Moreover, the ASP+ uses 150 tariff categories, whereas the ASP used only 16, which provides institutions with more points for comparison and ensures the financial compensation they receive is commensurate with the costs incurred for their surgical output.

The funding allocated to an institution for its surgical activities is based on the product of the volume of surgeries performed and the provincially determined tariff for each type of surgery, rather than on historical data.

— Volume tracking, which is necessary with this funding method, is done using existing tools to track volumes in the short term, while continuing development in order to obtain more accurate information.

While the funding allocated to institutions is based on tariffs and volumes, from the system's perspective, the ASP+ is designed to operate in a context of a closed envelope determined by the government.

1 While the term "hospital" is used in the description of the care pathway, the program is also intended for other types of institutions that perform surgery.

■ How to implement the change

To ensure the proposed changes are implemented smoothly, the Expert Panel proposes the following:

— ensure the integrated management of the initiative by creating a project management team and by anchoring the ASP+ in a national surgery strategy;

— ensure that processes and changes in methodology are transparent, both for clinicians and administrators;

— use transition mechanisms for several aspects of the program (patient pathway funding, tariffs, performance management, production of clinical and financial data, etc.);

— adopt a strategy to involve the health care network in the development of the program's parameters and ensure effective communication with the various stakeholders concerned;

— develop a strategy for monitoring and evaluating results that will be launched at the same time the initiative itself is developed.

■ How to manage the risks

The introduction of a patient-based funding method may involve risks, both clinical and financial. Therefore, the ASP+ includes measures to:

— give institutions the means to adapt;

— maintain budget control;

— mitigate operational risks.

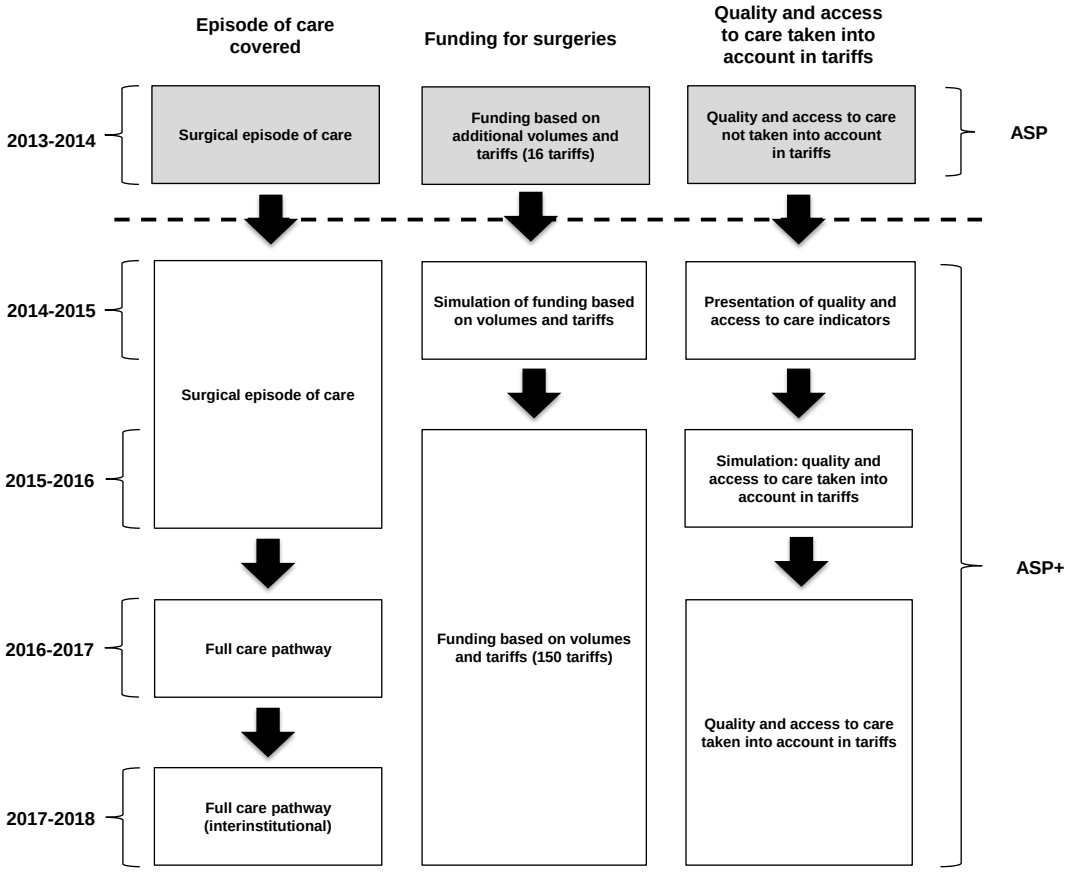
These elements are in addition to those already provided for to promote appropriateness and quality of care.

❑ Timeline for the implementation of the ASP+

In accordance with the approach recommended by the Expert Panel, the ASP+ will be phased in over several years.

ILLUSTRATION 1

Summary of the gradual implementation of the ASP+



INTRODUCTION

In the Budget Speech of March 20, 2012, the government expressed a clear commitment to exploring patient-based funding and created the Expert Panel for Patient-Based Funding.[2] The objective in doing so was, on the one hand, to propose means to implement patient-based funding in the health care network in order to improve access, quality, equity and efficiency and, on the other hand, to identify concrete initiatives in the health and social services sector where this funding will apply.

By directly linking care to funding, this funding method aims to improve the use of funds dedicated to health in order to provide better health care to patients using the budget envelope determined by the government. This funding method requires complete and reliable data on care costs and outcomes in order to support the management, organization and delivery of health services. With patient-based funding, the way institutions are managed and the budget envelope distributed between institutions can be improved to better meet the population's needs.

- Patients receive better health care when funding is linked to access and quality of care due to the availability of better information on the impact of care on patient outcomes.

- Institutions' activity is broken down and reported in much greater detail, providing valuable information to those funding and providing care.

- Information on diagnostics and procedures is also improving, since the payment institutions receive is based on case severity and coding accuracy.

- Institutions are encouraged to improve their cost-per-patient accounting system in order to continue improving their performance.

This information can also be used to compare patient experience and health outcomes as well as health care delivery processes. Introducing this method will make it easier to compare performance with respect to costs, efficiency, access and quality. These comparisons can be made within the same institution or between institutions, providing valuable information to improve the quality and efficiency of services.

In recent years, the Ministère de la Santé et des Services sociaux (MSSS) has already taken steps to initiate a shift towards patient-based funding. The Access to Surgery Program (ASP) is undoubtedly the most significant of these. It is only natural, then, that the expansion of the program should be one of the priority areas for the application of patient-based funding in Québec

This initiative is presented with a view to its permanent implementation in 2014-2015. Therefore, in addition to discussing the objectives and principles underlying the expansion of the Access to Surgery Program (PAC+), this paper also addresses certain operational considerations.

[2] The name initially given to the Expert Panel was "Expert Panel on Activity-Based Funding". In the 2013-2014 Budget Speech, the Expert Panel's mandate was expanded and its name changed.

In particular, the purpose of this paper is to clearly present and document:

- the objectives achieved by the ASP in the last ten years;
- how the program can be aligned with the main orientations of the health care system;
- the intended benefits of these changes for patients;
- the actual proposal, i.e., the objectives and the application and transition mechanisms required to make the ASP+ a real patient-based funding initiative;
- the key elements of a successful change, namely, the approach adopted to implement the change and how the associated risks are managed;
- the Expert Panel's main recommendations in these respects.

PART ONE:
AN OPPORTUNITY FOR CHANGE

1. THE CURRENT ACCESS TO SURGERY PROGRAM

1.1 How the program works and the resources allocated to it

The Access to Surgery Program (ASP) was implemented in Québec in 2004-2005. It was introduced with the primary objective of increasing the volumes of certain types of surgeries in order to reduce wait times. Its funding covers the volume of additional surgeries compared with 2002-2003. It initially targeted hip, knee and cataract surgeries, mainly due to problems with access to these surgeries. To prevent the output of these surgeries from increasing at the expense of other surgical activities, other types of surgeries were rapidly integrated into the program.

Indeed, this program has helped significantly reduce wait times for several types of surgeries in the past ten years. While the program has undergone changes and revisions by the MSSS over the years, it has never undergone an external assessment to analyze the extent to which its objectives have been achieved and any potential negative or adverse effects.

❑ How the program works

For each type of surgery and each participating institution, the ASP funds additional surgeries, i.e., the volume of surgeries that exceeds the volume produced by the institution in 2002-2003.

The surgeries covered by the ASP are classified by cost category.

A tariff is determined for each category based on the intensity of resource utilization in this category and the average unit cost for the reference fiscal year. The unit cost is determined based on direct and indirect costs, after excluding costs related to teaching, research, remoteness and pediatrics.

Categorization of surgeries is based primarily on activities reported to the Régie de l'assurance maladie du Québec (RAMQ) by physicians. A cost and a tariff are assigned to each category based on the average level of resources used by each diagnosis-related group (DRG).[3]

All institutions that perform surgical procedures participate in the program. For the fiscal year 2012-2013, there were one hundred participating institutions.

In general, the funding allocated to participating institutions is the product of the tariff and the number of additional surgeries performed during the fiscal year in question compared with 2002-2003. For each institution, the result may be positive or negative, depending on the change in volumes. It is added to or subtracted from basic funding for surgical output, which continues to be determined using an historical approach.

Hospitals that perform these additional surgeries at below-average cost are rewarded for their efficiency, while those with above-average costs are encouraged to reduce their costs to bring them in line with the average.

[3] More specifically, the average level of resources used by each diagnosis-related group (DRG) is used to determine a weighting for each cost category. The tariff for a given cost category is obtained by multiplying the unit cost by the weighting for this category.

This additional funding for surgeries is allocated to the producing region. The responsibility for distributing budget allocations by institution has been delegated to health and social services agencies, which must determine a payment method for institutions. Experience shows, however, that the deployment of the ASP has not been uniform across regions, with different objectives producing different outcomes.

Changes in Access to Surgery Program tariffs

The program initially comprised five tariffs, i.e., those for the surgeries targeted, with separate tariffs set for day surgeries and those requiring hospitalization.

In 2011-2012, the recommendations made by the surgical procedures review committee prompted a number of changes how tariffs are set.

The committee's main observations were as follows:

- Only surgeries performed in the operating unit are considered when allocating funding. Thus there is an incentive to perform surgeries in the unit to benefit from this funding when, in some cases, a different technical platform might have been more efficient.
- There are funding inequities due to increased reporting of surgeries performed in service units for certain institutions.
- Certain types of surgeries previously performed in day surgery have been transferred to inpatient surgery to benefit from additional funding.
- There are not enough tariff categories to accurately reflect the actual cost of surgeries.

Since 2011, volumes have been tracked using RAMQ remuneration data, ensuring a more efficient use of resources, in particular the operating unit. This database covers a wider range of surgeries, including those performed in service units. In addition, new cost categories, sixteen in all, have been introduced, without any distinction in status between inpatient cases and those in ambulatory services.

This new methodology allows a better overall assessment of surgical activity, irrespective of where it is performed. It encourages institutions to use the proper technical platform to perform surgical procedures and takes developments in medical practices into account.

❑ Changes in output volumes

The surgeries covered by the Access to Surgery Program increased by 22% between 2002-2003 and 2012-2013, which represents an annual growth rate of 2.0%.

For certain types of surgeries, the increase is more marked, in particular those covered by a guarantee of access.[4] Thus, between 2002-2003 and 2012-2013:

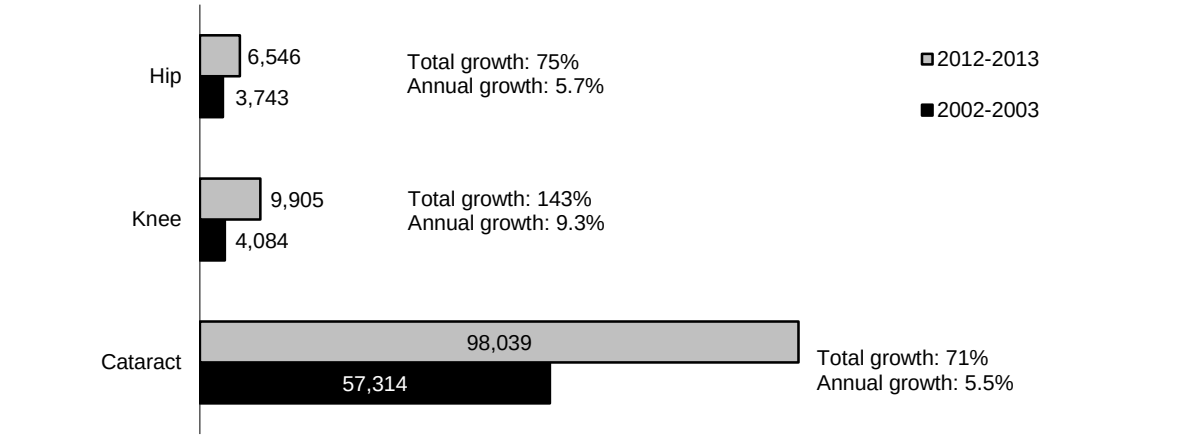
— the number of hip surgeries increased from 3,743 to 6,546, an increase of 75%, which represents an annual average growth rate of 5.7%;

— the annual number of knee surgeries increased by 143%, from 4,084 to 9,905, an average growth rate of 9.3% per year;

— cataract surgeries increased by 71%, from 57,314 to 98,039, an annual average growth rate of 5.5%.

GRAPH 1

Growth in volume for certain types of surgeries between 2002-2003 and 2012-2013
(volumes in units, growth as a percentage)



Source: Ministère de la Santé et des Services sociaux.

[4] In response to the Supreme Court of Canada's decision of June 2005 in the case of *Chaoulli* v. *Quebec* (*Attorney General)*, the government phased in a guarantee of access to services in the public system.

❑ The financial resources allocated to the program

This increase in surgical output led to increased funding for the program, from some 29 million dollars in 2004-2005 to almost 250 million dollars in 2011-2012.

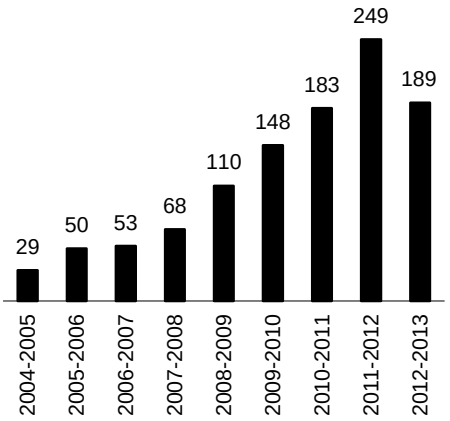
— Since the ASP is a strategy to increase surgical output, the growth in program spending must be considered in relation to the increase in the volume of surgical output, and not interpreted as an increase in unit production costs.

In 2012-2013, program spending decreased primarily due to a reduction in tariffs related to the removal of indirect costs. For this year, spending was 189 million dollars which is added to the basic funding for surgical output.

The amounts allocated to the ASP represented 3% of the physical health program budget in 2012-2013.

GRAPH 2

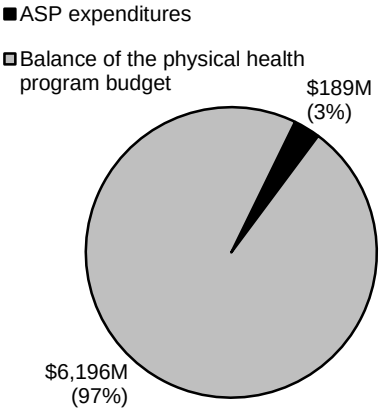
Changes in Access to Surgery Program expenditures between 2004-2005 and 2012-2013
(in millions of dollars)



Source: Ministère de la Santé et des Services sociaux.

GRAPH 3

Access to Surgery Program expenditures relative to the physical health program budget in 2012-2013
(as a percentage)



Source: Ministère de la Santé et des Services sociaux.

1.2 The clinical results achieved

Considerable progress has been observed since 2002-2003 in access to medical and hospital services, which is reflected, for instance, in the significant reduction in wait times for orthopedic surgery, in particular hip and knee surgery.

— Although more patients may be registered for surgery from year to year, they do not wait as long for their surgery.

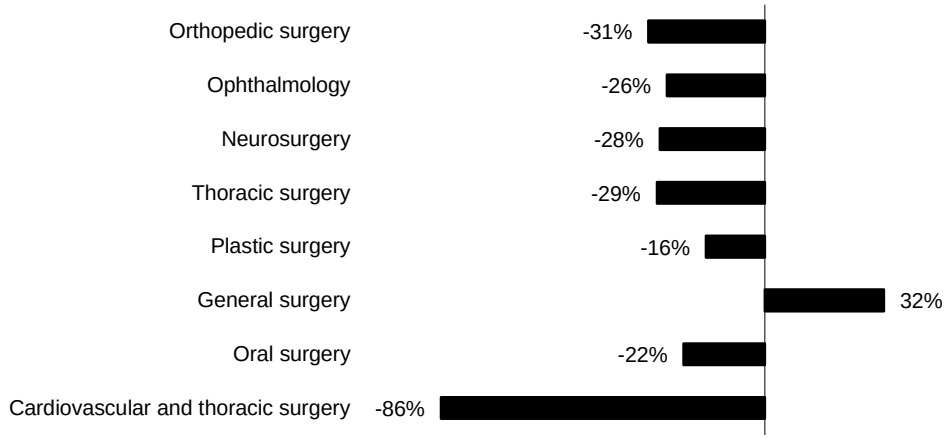
❑ Shorter wait times

The various surgical specialties saw their average wait time decrease between 2008-2009 and 2011-2012.

Cardiovascular and thoracic surgery showed the most significant decrease (−86%), followed by orthopedic surgery (−31%), which includes hip and knee surgeries.

GRAPH 4

Changes in average wait times by specialty between 2008-2009 and 2011-2012(1)



Note: While wait times for general surgery increased, they were less than three months.
(1) Period selected due to the availability of data.
Source: Ministère de la Santé et des Services sociaux.

❑ Shorter lengths of stay

The average length of stay has decreased in a number of surgical specialities since 2002-2003.

— This is true, in particular, for orthopedic (−11%), general (−14%) and oral (−16%) surgery.

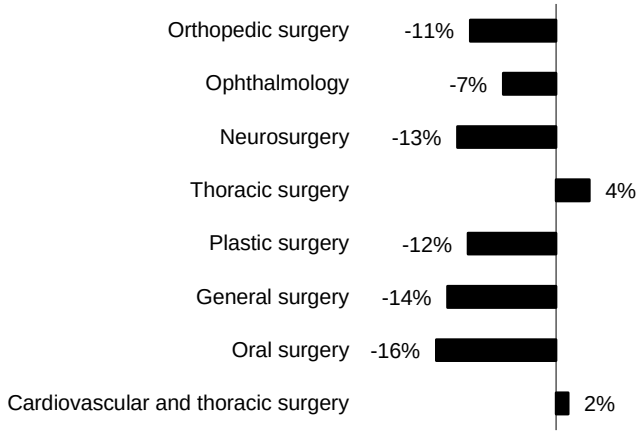
These results reflect efficiency gains in the performance of surgeries over the last decade.

— In addition to the benefits of shorter lengths of stay for patients, these productivity gains improve health institutions' financial performance. Due to the availability of data, it is, however, difficult to quantify the changes in costs per case underlying institutions' improved financial performance.

The financial incentives introduced under the Access to Surgery Program helped generate these efficiency gains, along with other factors such as improvements in medical practices and technological advances.

GRAPH 5

Changes in average length of stay by specialty between 2002-2003 and 2010-2011[(1)]



(1) Period selected due to the availability of data.
Source: Ministère de la Santé et des Services sociaux.

❑ The limits of the current program

■ Some people still wait too long

A number of factors could explain why it is difficult to maintain shorter wait times over time. Indeed, the impact of the increased volume of surgeries on improved access to surgery tends to lessen over time if increased output is not associated with an improvement in organizational processes.

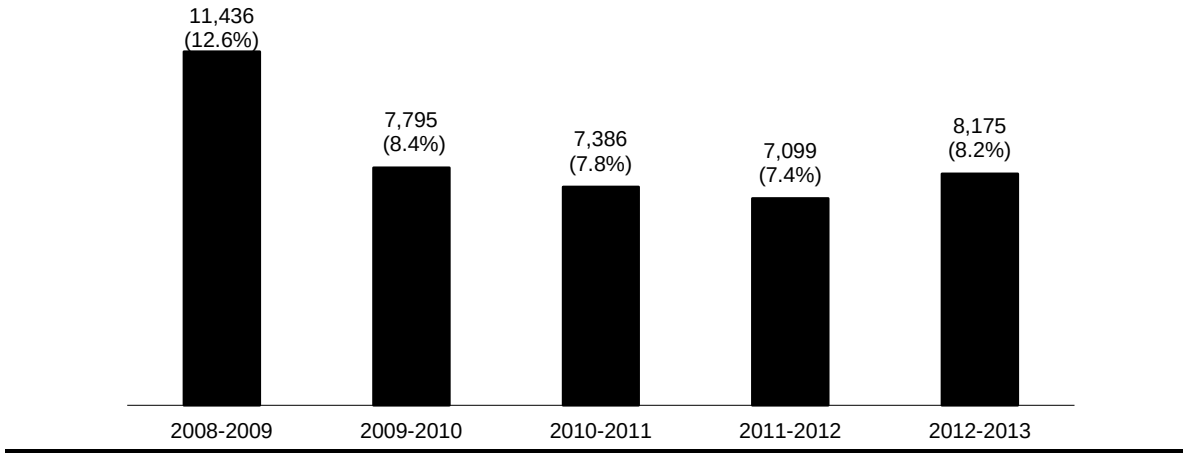
— The Access to Surgery Program's results are no exception to this. Additional output volumes are no longer able to fully meet the growth in demand.

Thus, despite the progress achieved, some people still wait too long for access to services. Increases in recent years in the number of patients waiting longer for surgery than the recommended wait time attest to this issue of accessibility and equity.

— Between 2008-2009 and 2012-2013, the number of patients waiting more than one year fell from 11,436 to 8,175.

— Furthermore, in 2012-2013, 8.2% of patients waiting for surgery had been waiting more than one year.

GRAPH 6
Changes in the number of patients waiting more than one year between 2008-2009 and 2012-2013(1)
(in number and as a percentage)



(1) Period selected due to the availability of data.
Source: Ministère de la Santé et des Services sociaux.

Access still varies between regions

Moreover, there are disparities in access to surgery across Québec. Despite significant results in increasing volumes of surgeries, the number of people waiting more than six months for surgery varies widely between regions.

For example, an analysis of the situation on January 11, 2014 showed that 36% of people in the Montreal region waiting for day surgery had been waiting more than six months (8,003 people).

— This proportion was 15% in the Montérégie region (1,079 people) and 32% in the Capitale-Nationale region (2,068 people).

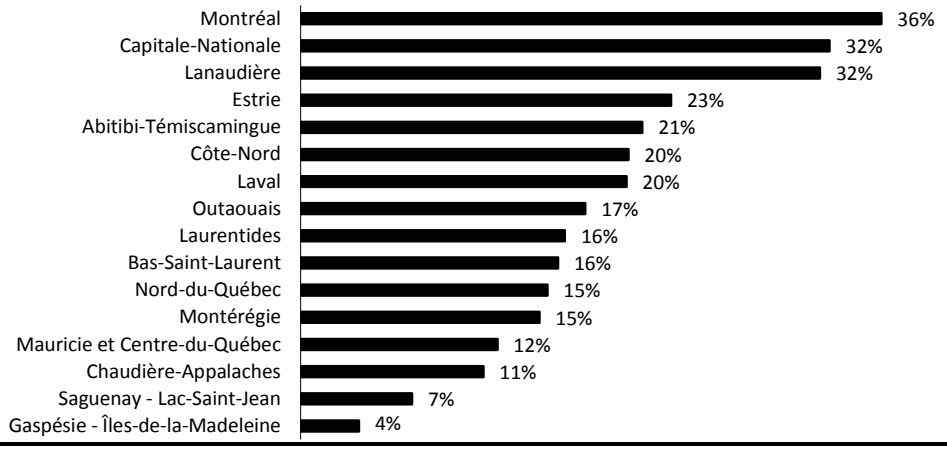
A number of factors can explain these interregional disparities in access, in particular the availability of operating rooms and specialist physicians. There are also significant disparities in how the funding allocated to regions is used, with some agencies not fully adopting the program's parameters and instead using their own funding method depending on their strategy for increasing volumes of surgeries.

— All these factors can lead to differences in the results for patients.

The Expert Panel believes that implementing patient-based funding will help reduce these disparities.

GRAPH 7

Proportion of patients waiting more than six months for day surgery[(1)]



(1) Situation on January 11, 2014.
Source: Data from the Information System on Mechanisms of Access to Specialty and Subspecialty Services (SIMASS).

The lack of quality control and monitoring

The current program does not use quality indicators to determine the payment institutions receive for additional surgeries.

Experiences with activity-based funding elsewhere in the world indicate, however, that evaluating quality is important, in the same way that tracking volumes is important. Evaluating quality allows the appropriateness of surgical output to be assessed, while ensuring that surgeries are performed with a constant concern for patient safety.

Consequently, appropriateness and quality of care should be measurable with respect to surgical output.

Although work is underway at the Ministère de la Santé et des Services sociaux to equip the MSSS and the network with a system for monitoring performance in the surgical sector, the Access to Surgery Program does not include measures or incentives to maintain quality and appropriateness of care, in particular because:

— these measuring instruments were not available when it was implemented;

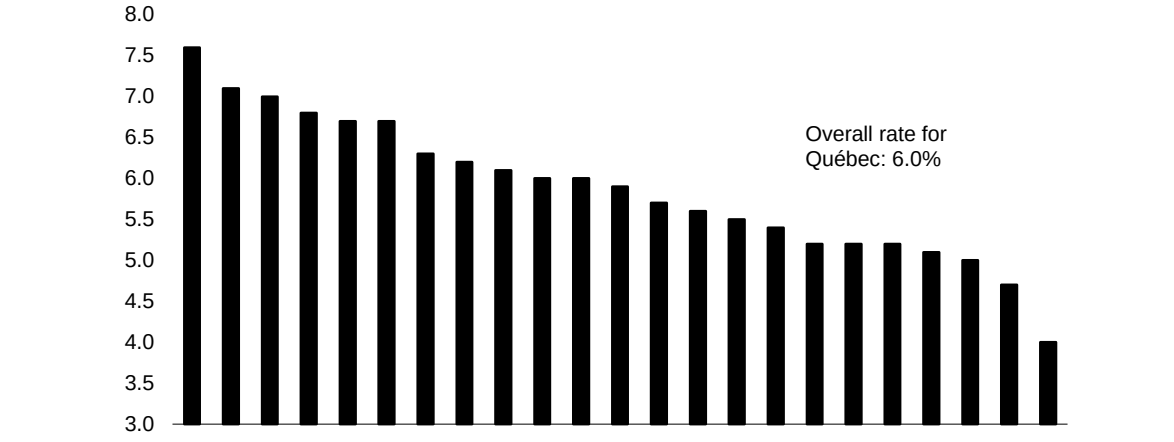
— the ASP covers only certain output volumes, not all output volumes.

Yet the quality of surgical care varies widely between institutions, underscoring the need for quality control and monitoring.

— The variability in readmission rates within 30 days after surgery accurately reflects variations in quality between institutions.

GRAPH 8

Readmission rates within 30 days after surgery in Québec's large community hospitals[(1)] in 2010-2011[(2)]
(as a percentage)



Note: To make comparisons easier, the indicator used is a "risk-adjusted" rate, i.e., the results were estimated taking patient characteristics (sex, age and relevant comorbidities) into account.
(1) Large community hospitals are hospitals that meet two of the following three criteria: (1) more than 8,000 inpatients (2) more than 10,000 weighted cases (3) more than 50,000 inpatient days.
(2) Period selected due to the availability of data.
Source: Ministère de la Santé et des Services sociaux.

The successes and limits of the Access to Surgery Program: feedback obtained from focus groups in the health care community

In 2012, at the request of the Expert Panel for Patient-Based Funding, a process to evaluate the Access to Surgery Program was undertaken. The objective was to encourage representatives of the health and social services network to reflect, in particular through focus groups, on the clinical and financial aspects of the Access to Surgery Program.[5]

The main strengths and shortcomings of the program identified by these groups are presented below.

Clinical component

- The program, especially since its improvement in 2011, encourages the use of the most appropriate technical platform for surgeries and has led to better service organization.
- Understanding the model has encouraged some institutions to reproduce it for other activities.
- Existing information systems do not contain the mechanisms required for the reconciliation, verification and comprehension of clinical and financial data related to surgery. Consequently, institutions do not have adequate means to analyze the quality and efficiency of the interventions performed.
- Shortcomings with respect to the availability of methodological information for the program make dissemination to the various stakeholders in the network difficult.
- The lack of monitoring of quality of care, through the use of performance indicators and target outcomes, means that the program cannot be evaluated properly.
- The possibility of institutions partially or totally restricting surgeries that receive less funding or using the least costly practice even if it is less appropriate increases the risks of perverse effects on practice.

Financial considerations

- The financial resources made available to institutions have led to increased output.
- Since medical practices have evolved considerably in the past ten years, using 2002-2003 as a baseline for determining additional volumes is no longer appropriate.
- In some cases, production costs have proven higher than the funding allocated due to the parameters used by the MSSS to determine the reimbursement per intervention and the solutions adopted by institutions to increase output.[6]
- There are significant disparities in the allocation of funding between regions; in addition, some agencies do not adhere to the funding parameters provided for in the program and use their own methods.
- Tariff-setting parameters are obsolete and do not take the particular situations of some institutions sufficiently into account.

5 See: MINISTÈRE DE LA SANTÉ ET DES SERVICES SOCIAUX, *Focus groups sur l'appréciation de l'approche de financement par activité utilisée par le MSSS*, Final report, October 10, 2012.

6 Many institutions do not have accurate information on costs per procedure; this observation is suggested by a comparison of institutions' total spending and the total funding received.

1.3 The case for change

The ASP was a step in the right direction to improve access to surgery. It has been one of the instruments used to increase volumes of surgeries and reduce wait times for most types of surgery, helping in particular to reduce the proportion of cases waiting too long.

However, in its present form, the program has reached a certain limit in its ability to improve the population's access to surgical services.

— The demand for this type of services continues to grow, putting more pressure on the system. The expertise and experience acquired since the program was introduced have paved the way for new developments.

In addition, as mentioned by focus group participants, the Expert Panel believes that it is imperative that the program be linked to quality objectives.

— In order to go one step further and steer the program toward quality objectives, all output must be covered, not only surplus output.

Moreover, considerations other than those related to quality also suggest that the Access to Surgery Program is too partial.

— In particular, gains are limited when incentives to improve efficiency apply only to volumes of additional surgeries. Coverage of all surgical output is a key element in redirecting the supply of output toward the most appropriate sites and improving efficiency in service delivery.

— Thus, to maximize efficiency gains in the surgical sector, the same funding provisions must apply to all surgical activity.

To align it more closely with the main orientations of the health care system, the ASP should be expanded and linked to quality objectives. The ASP+ should be one of the concrete initiatives proposed to implement patient-based funding in Québec.

The remainder of the paper presents the Expert Panel's proposal in this regard, namely, to develop an *"expanded patient-based funding program".*

Recommendation 1

Expand the Access to Surgery Program, make the ASP+ one of the concrete initiatives proposed to implement patient-based funding in Québec and link the program to quality objectives.

2. AN INTEGRATED APPROACH TO IMPROVE THE FUNDING OF SURGERY

In response to the limitations of the Access to Surgery Program as well as to certain concerns expressed by the health care community regarding the program, the Expert Panel for Patient-Based Funding proposes expanding the program to cover all surgical output, the ASP+.

The Access to Surgery Program can and should be developed so that it is more closely aligned with the main orientations of a high-performing health care system, namely:

- access to care;
- appropriateness and quality of care;
- equity;
- efficient service delivery.[7]

Compared with global and historical budgets, patient-based funding models can bring about positive changes in these respects.[8]

Beyond the financial aspects, the program must be an incentive to improve service organization and management. It must also include a methodology for monitoring institutions' performance and encourage a participatory approach between clinicians and network managers.

A number of principles influence the approach adopted to achieve these objectives, namely:

- the definition of a global vision by developing a national surgery strategy;
- close collaboration between clinicians and managers;
- the adoption of a progressive implementation approach so that the program ultimately funds the entire care pathway.

Despite the potential for improvement afforded by patient-based funding, the introduction of this new funding method may involve risks.[9] The Expert Panel is aware of this possibility and has therefore been particularly attentive to how the risks should be managed. These issues are addressed in Section 6 of the paper.

Recommendation 2

Align the ASP+ with the main orientations of a high-performing health care system, namely, access to care, appropriateness and quality of care, equitable and efficient service delivery.

7 In the course of its work, the Expert Panel developed a reference framework for defining a health care system's performance dimensions. It differs from the MSSS's ministerial reference framework for performance measurement in some respects, but the substance of both frameworks is similar.

8 Consult the strategic report for more details.

9 The strategic report presents the risks associated with patient-based funding in more detail. Some of these risks are also presented in the following document: Jason M. SUTHERLAND et al., *Reviewing the Potential Role of Financial Incentives for Funding Healthcare in Canada*, Canadian Foundation for Healthcare Improvement, December 2012.

2.1 A better alignment with the main orientations of the health care system

In addition to being a pilot project for implementing patient-based funding in Québec's health care system, the objective of the Expert Panel's proposed expansion of the Access to Surgery Program is to align the surgical sector more closely with the main orientations of the health care system.

❑ Access to care

Access to care is one of the main dimensions of performance in the health and social services system. While there are several definitions in the literature, it is generally understood as follows:

— access to care is defined as the balance between population needs and utilization of the health care system. In this context, population needs are determined based on the population's sociodemographic characteristics, while health care system utilization is understood as effective patient management.[10]

This translates, on an individual level, to obtaining the required care within an optimal time frame.

When applied to surgery, the Expert Panel notes the following with respect to the concept of access:

— that the patient must obtain the required service within an optimal timeframe;

— that to ensure access, access standards must be established based on medically recommended time frames or on those agreed upon in administrative and medical plans.

  — For example, access to cancer surgery is medically recommended within 28 days, while the MSSS has determined that a patient should have cataract surgery within six months.

The results achieved by the Access to Surgery Program are indicative of the potential of an expanded program. Introducing patient-based funding for all types of surgery will not only allow us to continue in this direction, but to influence other aspects of the health care system too, in particular appropriateness and quality of care.

[10] See, for example: Lu Ann ADAY and Ronald ANDERSEN, "A framework for the study of access to medical care", *Health Services Research*, 1974, Vol. 9, pp. 208-220.

❑ Appropriateness and quality of care

The Expert Panel believes that access to appropriate, quality service must be ensured.

Appropriateness can be defined as the combination of the right care, provided to the right patient, at the right time and in the right place.[11]

Thus, with respect to quality of surgical care, the group notes the following three dimensions:[12]

— health care services should be based, as far as possible, on rigorous scientific or research evidence;

— the patient should not be harmed by the care received or exposed to unnecessary risks;

— health care services should be based on a partnership between practitioners and the patient; health care should be delivered with compassion, empathy and responsiveness to the patient's needs, values and preferences.

Appropriateness and quality of care should be measurable with respect to surgical output. Yet the Access to Surgery Program does not include measures or incentives to maintain quality and appropriateness of care, in particular because:

— these measuring instruments were not available when it was implemented;

— the ASP covers only certain output volumes, not all output volumes.

Assessing appropriateness and quality must now be made a requirement. This means that all surgical output must be assessed, an essential requirement to make access to services more equitable.

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11 See, for example: CANADIAN MEDICAL ASSOCIATION, *Physicians taking lead on appropriateness of care*, August 21, 2013, http://www.cma.ca/physicians-lead-appropriateness-of-care.

12 The concept of quality is presented more exhaustively in the paper on best practices, page 7. The paper on quality provides a broader definition of quality, encompassing the dimensions of the system's capacity, equity and access. The latter two dimensions are presented separately here.

❑ Equity

There are two main dimensions of equity in health care:

— equity for patients means that health care services are distributed according to patients' needs, irrespective of where they live or their condition.[13] It refers to equitable access, where standards of quality and appropriateness are respected;

— equitable funding for the same service, allowing institutions to provide comparable services for equivalent funding.[14]

By expanding patient-based funding to include all surgical output, the Expert Panel believes that funding can be directed to where the patient chooses to seek treatment.

❑ Efficient service delivery

Efficient health care delivery can be defined as the production of a quality, appropriate service at the best possible cost.[15]

Efficiency in health care is constantly evolving due to improved clinical and financial knowledge, on the one hand, and medical technologies on the other.

Implementing a system of patient-based funding will provide agencies and institutions with additional information on clinical processes and costs.

— This information is both a necessary condition and an incentive to improve efficiency in service delivery.

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13 See, for example: Joseph KUTZIN*, Health Financing Policy: A Guide for Decision-Makers*, World Health Organization, 2008, pp. 5-7.

14 See, for example: Gaétan LÉVESQUE, *Mode d'allocation des ressources financières 2006-2007 aux hôpitaux du Québec pour les patients hospitalisés et en chirurgie d'un jour par le ministère de la santé et des services sociaux*, 2007, http://www.oiiaq.org/documents/file/mode-allocation-ressources-hopitaux.pdf, 2007.

15 See, for example: AGENCY FOR HEALTHCARE RESEARCH AND QUALITY, *Health Care Efficiency Measures: Identification, Categorization, and Evaluation: Final Report*, Rockville, MD, 2008.

The potential for efficiency gains: a concrete illustration

Efficiency gains are seen when institutions succeed in reducing costs to provide a service of equal or greater quality. The graph below shows the gains for Québec when, for a service of the same quality, institutions with high production costs succeed in bringing this cost down to the average level across institutions.

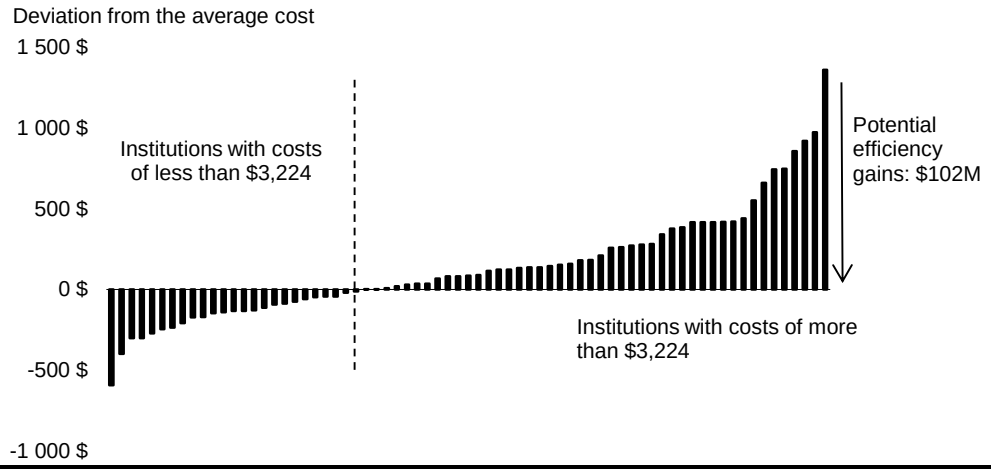
For example, potential efficiency gains can be illustrated using the MSSS's efficiency model for inpatients and day surgery patients.

For the 2011-2012 fiscal year:

- the adjusted average cost[1] per weighted case in the 74 institutions that provide surgical services for these patients was $3,224;
- 46 institutions, representing 55% of surgical activity for inpatients and day surgery patients,[2] had an average cost that was higher than the overall average cost for institutions.

Thus, if the average cost per surgery in these institutions could have been brought down to the overall average cost, efficiency gains of roughly 102 million dollars could have been achieved. This amount represents 3.5% of total spending on surgical activity for inpatients and day surgery patients.

Illustration of potential efficiency gains in service delivery – 2011-2012



Source: Expert Panel calculations based 2011-2012 data from the Ministère de la Santé et des Services sociaux's efficiency model.

(1) Adjusted costs are costs from which costs associated with teaching are subtracted and to which costs associated with remoteness and pediatrics are added.
(2) Surgical activity is calculated based on weighted cases.

2.2 An initiative that is part of a national surgery strategy

In recent years, a number of measures have been undertaken to improve access and reduce wait times in the surgical sector.

- Certain types of surgery with long wait times have been given priority.
- Access standards have gradually been introduced for all surgical activities to support measures to improve access.
- An information system has been put in place by the MSSS to monitor wait times and services.[16]
- Legislative changes have been introduced to define responsibilities regarding access within institutions and obligations that must be respected.[17]
- More recently, efforts have been made to optimize the use of operating units and improve processes within institutions in order to increase the flow and efficiency of care (lean continuous improvement process).
- At the same time, the ASP was introduced to financially support additional surgical output.

To make actions more effective and coherent, it is desirable to take another step forward by developing a national surgery strategy.

Moreover, most successful experiences in implementing patient-based funding stress the importance of aligning financial incentives with clear objectives.

Objectives such as reducing wait times or ensuring quality, equity and efficiency provide general orientations. However, more specific objectives must also be identified. For example, the following questions must be addressed:

- What are the population's most pressing surgery needs, now and in the medium term?
- What rates would be appropriate for service utilization?
- What service redesign can be expected following changes in service models, demand and medical technologies?

A national surgery strategy would help bring these key questions to the fore and obtain answers, thus allowing efforts in the surgical sector to be more focused.

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16 Since June 1, 2007, a mechanism to manage access to non-urgent surgeries has been used in all regions of Québec. The Information System on Mechanisms of Access to Specialty and Subspecialty Services (SIMASS) is used to track changes in wait lists for these surgeries across Québec and the achievement of targets in each hospital.

17 *Act to amend the Act respecting health services and social services and other legislative provisions* (S.Q. 2006, chapter 43).

An initiative that is part of a national surgery strategy

The purpose of the national surgery strategy is to:

- determine the health care system's objectives in surgery;
- define access and quality standards and review them periodically;
- identify measures to be taken to support the appropriateness of services;
- propose quality assessment and performance measurement tools to be implemented to monitor, assess and adjust the services provided to the population;
- integrate funding models so that they support priority objectives;
- establish appropriate links with workforce plans and propose workforce training priorities that take advances in knowledge and organizational methods into account;
- ensure the integrated management of activities undertaken to achieve objectives regarding clinical and administrative information systems, fixed assets and equipment;
- develop reporting and information tools to inform the public about surgery services.

The Expert Panel sees the national surgery strategy as an additional opportunity to bring together and coordinate the efforts of clinicians and managers in achieving the objectives of access, quality, equity and efficiency in surgery.

Recommendation 3

Develop a national surgery strategy to make actions in the surgical sector more effective and coherent.

2.3 A close collaboration between clinicians and managers

Genuine collaboration between the clinical and the administrative sectors is one of the first requirements for the successful implementation of patient-based funding. This shared management approach is critical to achieving the objectives of patient-based funding. This is why the Expert Panel believes that the changes to be made in the management of surgical output in Québec must support increased collaboration between clinicians and managers. Thus:

— clinicians should be an integral part of service quality and cost management;

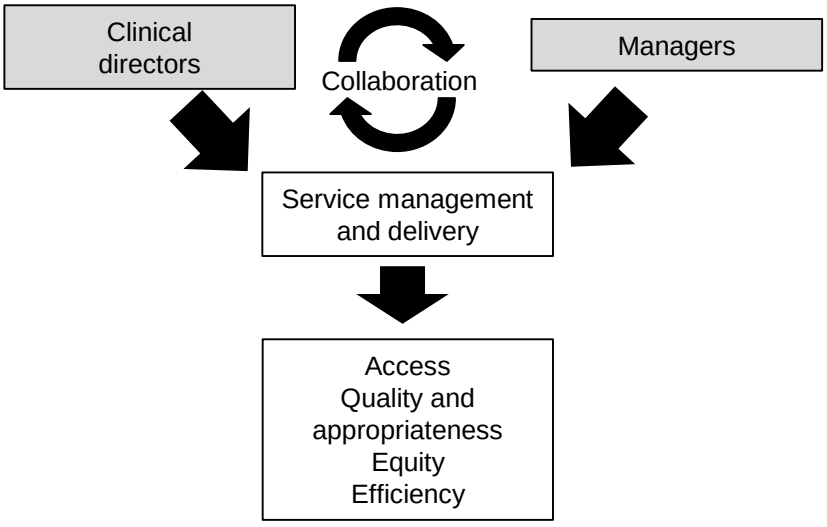
— both clinicians and managers should have access to transparent clinical and financial information systems as well as to relevant cost information;

— accountability for achieving results should be shared between clinicians and managers.

Administrative collaboration between clinicians and managers is already happening in some places in the network. This practice must become more widespread to maximize its impacts, a view shared by many stakeholders in the health care network. It is a condition for the successful implementation, management and evaluation of the ASP+.

ILLUSTRATION 2

Coherence between clinical and administrative responsibilities



Coherence between clinical and administrative responsibilities: a concrete example

At the Centre hospitalier universitaire de Sherbrooke (CHUS), clinicians and managers collaborate on two levels.

First, the Director of Nursing Services and the Director of Professional Services manage clinical services in partnership and are therefore responsible for patient programs. It is a shared management system where responsibility for all service organization matters is assumed jointly.

They are responsible for all programs; few programs are under the responsibility of a single person. Decisions are made together and orientations are supported by both on behalf of the Interdisciplinary Division of Clinical Services. They are also responsible for overcoming constraints related to service programs and ensuring that developments are in keeping with strategic planning.

Our patient programs are also co-managed. We have eleven patient programs, including three platform programs (pharmacy, imaging and laboratory services). We are jointly responsible for strategic, tactical and operational components. Our main objective is service organization and development.

All programs participate in decisions regarding major surgical equipment purchases.

As co-directors, we have developed a structure for ourselves that involves regular meetings with each patient program and a structure to meet with all the programs at the same time. Decisions are made by consensus.

Lastly, clinical administrative directors and medical directors are on an equal footing.

In the near future, we also plan to support skills development for two-person teams to give them the tools to carry out complete analyses together, make decisions together and support the same decision or orientation.

Source: Stéphane Tremblay, MD, FRCPC, MBA, Director of Professional Services and Co-director of Clinical Services, Centre hospitalier universitaire de Sherbrooke.

2.4 Funding a care pathway

The care received by a patient having surgery extends well beyond the procedures performed in the operating room. A patient receives many services, which constitute a care pathway.[18]

— Before the patient is even admitted to hospital, he has often had preoperative tests in ambulatory services, often at a day medicine centre (preoperative episode of care).

— Between a patient's admission to the hospital and his discharge, a multitude of services are provided in addition to services in the operating unit, such as nursing and laboratory tests (surgical care episode).

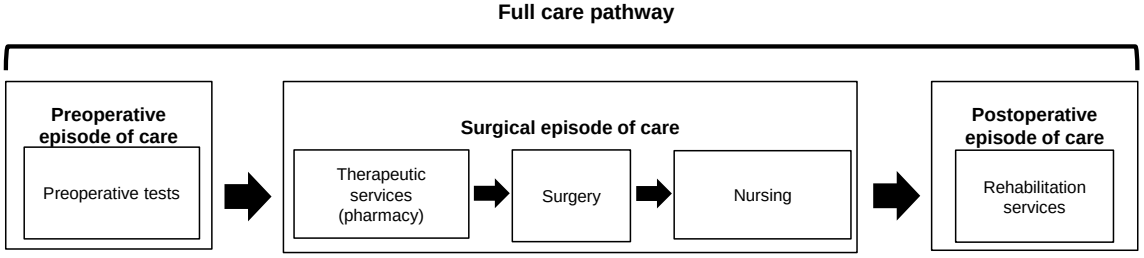
— After being discharged from the hospital, many patients continue to receive services related to their surgery, such as rehabilitation services, which they can receive in a rehabilitation centre or at home (postoperative episode of care).

Continuity along the entire care pathway and improved coordination between the various professionals involved in this pathway are essential to enhancing patient care.

Financial incentives must promote this coordination and continuity which is why funding must be based on a patient's entire care pathway rather than on each of its stages. Thus, once it has been phased in,[19] the ASP+ will ultimately fund the entire care pathway.

ILLUSTRATION 3

Illustration of a care pathway



Recommendation 4

Ultimately, fund the entire care pathway in accordance with the terms and conditions of patient-based funding and allocate funding based on a patient's entire care pathway rather than on each of its stages.

[18] There are many methods of health care organization and delivery. The Expert Panel decided to refer to the most general type. For example, while the term "hospital" is used in the description of the care pathway, the program is also intended for other types of institutions that perform surgeries.

[19] See Section 5, in particular Illustration 10 in Section 5.2, for a more detailed presentation of this gradual implementation.

2.5 A progressive approach

❑ The importance of a gradual change

Implementing patient-based funding in the surgical sector will involve changes to the system on several levels.

- The stakeholders concerned (MSSS, agencies, institutions and patient care units) may have to modify their practices.
- The production and methodical use of an increased amount of information compared with the current funding method will be required.
- In a complex system such as the health care system, a change in one component will have an impact on the others. For example, if volumes of surgeries increase, there will be additional pressure on rehabilitation services, both within and outside institutions.

To ensure these changes are made smoothly, it is crucial to:

- allow the various stakeholders time to adapt to the program and make it their own;
- take into account:
  - the current method of resource allocation,
  - the characteristics of existing clinical and financial information systems,
  - the availability of data for clinicians and administrators,
  - the organizational capacity to introduce the required changes;
- monitor the program's results while it is being implemented to ensure that they are in line with the objectives and make any necessary adjustments.

In this context, it is advisable to adopt a pragmatic approach and implement the ASP+ gradually, using existing data and conditions initially and introducing changes once the necessary conditions are in place.

- This will allow the various stakeholders the time they need to develop the tools required for the new system and to adapt to it.

❑ The gradual implementation of several aspects of the program

The Expert Panel proposes phasing in the ASP+ over several years. This multi-year implementation will take place on several levels:

— gradual introduction of the new funding method and use of transition measures to help the network adapt to the new system;

— gradual extension of the care pathway covered;

— gradual consideration of performance and quality in tariffs;

— gradual refinement of the nature of the data used as clinical and financial information is developed.

Furthermore, through the use of monitoring and evaluation mechanisms, the program should develop continuously to better respond to the main orientations of the health care system.

The stages involved in the gradual implementation of patient-based funding in the surgical sector are presented in more detail in Section 5.2 of the paper.

Recommendation 5

Adopt a pragmatic approach and implement the ASP+ gradually, using existing conditions and data initially and introducing further changes once the necessary conditions are in place.

PART TWO:
THE CLINICAL AND FINANCIAL DETAILS OF THE ASP+

3. CLINICAL SCOPE

The clinical scope of the ASP+ differs from that of the Access to Surgery Program in a number of respects, be it the procedures covered, the institutions that are eligible or the episode of care covered.

3.1 The procedures covered

The ASP+ covers all surgeries in order to:

- enable institutions to improve their service management, on both the clinical and the administrative levels;
- prevent certain adverse effects, such as priority being given to certain types of surgeries at the expense of other surgeries.

Ultimately, this initiative should lead to better health outcomes for patients.

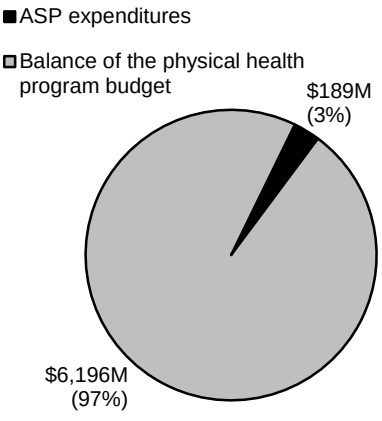
Thus the ASP+ covers almost all surgeries, including tertiary cardiology, hemodynamics and interventional electrophysiology. When, in exceptional cases, a sector cannot be covered owing to very high costs or a volume of surgeries that is too low, for example for grafts and transplants, funding will continue on a historical basis. In financial terms, the ASP+ should represent, in 2014-2015, a quarter (24%) of total estimated expenditures for the physical health program. This is a significant increase, since, in 2012-2013, the Access to Surgery Program represented only 3% of total expenditures in this area.

Recommendation 6

Cover all surgeries in order to enable institutions to improve their service management and to prevent certain adverse effects, such as priority being given to certain types of surgeries at the expense of other surgeries.

GRAPH 9

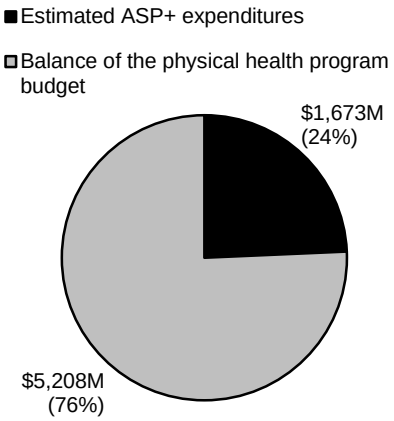
Access to Surgery Program expenditures relative to the physical health program budget in 2012-2013
(as a percentage)



Source: Ministère de la Santé et des Services sociaux.

GRAPH 10

Estimated ASP+ budget envelope relative to the physical health program budget in 2014-2015
(as a percentage)



Source: Expert Panel estimates based on Ministère de la Santé et des Services sociaux data.

❑ The categorization of surgical cases

Since the cost of providing care varies considerably depending on the type of care, categorizing all patient cases based on the services received is a crucial stage of patient-based funding. It allows institutions to obtain funding that reflects the cost of the services provided.

— At present, the surgeries included in the ASP are grouped into sixteen broad cost categories. This is not enough to take particular characteristics and the variety of services offered in surgery into account.

The experts are in favour of a new method for categorizing surgical cases. Surgeries will be categorized by combining two types of information, presented in more detail in the box on the next page:

— the classification of surgeries, based on the procedure codes in the physician remuneration database (RAMQ);

— the weight of surgical cases,[20] based on APR-DRG classifications.

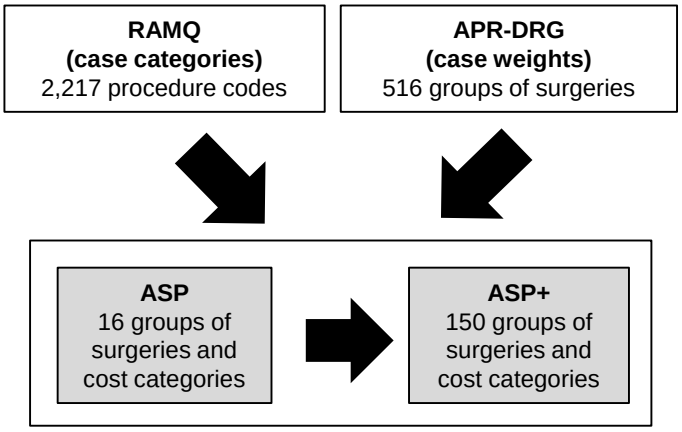
For the ASP+, using this method produces approximately 150 groups of surgeries. This is a sufficient number to group together procedure codes that are considered homogeneous, both clinically and in terms of resource utilization. The classification methodology is presented in more detail in Appendix IV.

The creation of these 150 groups of surgeries will allow the volume of surgical output and the cost of interventions to be assessed properly.

This categorization system must be established by the MSSS. Reviewed annually, it must be made available to institutions before the start of each fiscal year.

ILLUSTRATION 4

Categorization of surgeries in the ASP+



[20] Case weight refers to the level of resource utilization required.

Clinical databases used in the ASP+

RAMQ database

The administrative database under the RAMQ's responsibility was created for the remuneration of physicians in the health care network. It contains procedure codes for each of the treatments provided by physicians.

- In the ASP+, this database will be used to categorize the surgical procedures covered by the program and to track volumes. Institutions will then be reimbursed accordingly.

MED-ÉCHO database

MED-ÉCHO[(1)] is a provincial clinical and administrative database used mainly to collect information on hospital admissions in terms of the interventions, diagnostic procedures and services used for differentiated patient characteristics. It was created to support research and epidemiological surveillance.

- This database contains detailed data on the nature of acute inpatient care and day surgeries. It also provides information about the type and quantity of services provided to each patient. Data is coded by institutions' medical archivists.

  The data submitted to the MED-ÉCHO database is classified using a patient classification system called APR-DRGs. This internationally recognized classification system assigns a diagnosis-related group (DRG) and level of severity to each patient.

  There are four different levels of severity, from minor to extreme. The level of severity assigned is based on a combination of factors, namely, the primary and secondary diagnoses, the interventions performed and the patient's age. Classification by levels of severity allows a better assessment of the resources needed to treat a patient.

- In the ASP+, the MED-ÉCHO database will be used to assess case weights.

SIMASS database

The SIMASS database, the Information System for Managing Access Mechanisms to Specialized Services, contains data on wait lists for the different types of surgery. The database's classification system is based on the Canadian Classification of Diagnostic, Therapeutic and Surgical Procedures (CCP), with certain methodological modifications to adjust for changes in medical practice. The SIMASS database is continually updated and can be used to track volumes of surgeries in real time.

- The SIMASS database will be used to track volumes of surgeries in real time and to monitor wait lists in the ASP+.

Other sources of information

Lastly, other databases will also be used. The I-CLSC database (Information System on Local Community Health Centre Services and Patients), which provides data on services provided in health and social services centres, will be used to monitor postoperative home care, while the SIPAD database (Information System for Persons with Disabilities), which contains data on rehabilitation services, will be used to monitor these services in rehabilitation centres.

(1) Ministère de la Santé et des Services sociaux ministerial database MED-ÉCHO (Maintenance and Development of Data for the Study of Hospital Patients).

3.2 Eligible institutions

Institutions in the health and social services network with a hospital mission do not all have the same characteristics.

— Some may be very specialized and perform high volumes of a few specific surgeries, while other, small institutions, offer a wide range of surgeries, but in lower volumes.

Several studies suggest that a "minimum volume" criterion must be established to determine which institutions are eligible for the ASP+. Indeed, some institutions with volumes that are too low are not suited to this type of funding.

However, it is important to remember that the latter play a vital role in access to services for the population, especially in regions with a low population density.

❑ A minimum production threshold of 1,000 weighted cases per year

To be eligible, institutions will be required to have a surgical production volume of at least 1,000 weighted cases per year.

This threshold was chosen for two reasons:

— applying the proposed funding method to institutions with lower production volumes might undermine the supply of services in these institutions;

— a minimum production threshold of 1,000 weighted cases per year is also used in other jurisdictions.

This threshold will encompass a sufficiently high number of activities, namely, 52 institutions and over 97% of surgical output.[21]

— The weighting attributed to a case indicates the intensity of resource utilization for this type of procedure, calculated based on the weight of the procedure in question (NIRRU).

— Weights must be used to establish relative values for the different types of surgeries.

Institutions that carry out surgical activities but remain below this eligibility threshold will continue to be funded using an historical approach, but performance mechanisms that include the dimensions of quality, appropriateness and safety may be introduced to ensure performance is improved in these institutions.

Recommendation 7

Adopt a threshold of 1,000 weighted cases per year to determine institutions' eligibility and continue to fund institutions that carry out surgical activities but remain below this eligibility threshold using an historical approach, while also providing for performance mechanisms that include the dimensions of quality, appropriateness and safety.

21 A lower threshold would have meant that institutions with low volumes and particular characteristics that are less suited to the type of funding proposed would have had to have been included.

ILLUSTRATION 5

Estimated annual weighted volume

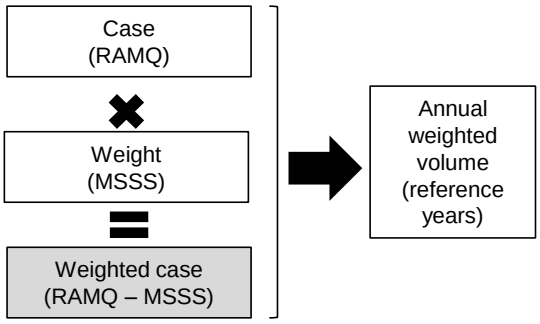
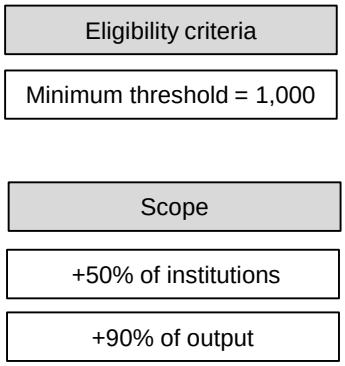


ILLUSTRATION 6

Incidence of the minimum production threshold



The NIRRU: a tool for assessing case weights in order to categorize surgical cases

The relative intensity level of resource utilization (NIRRU) is the measure used by the MSSS to quantify the weight of cases.

A NIRRU is attributed to each type of medical procedure, i.e., each APR-DRG, based on the medical resources used to treat a typical case. Thus the higher an APR-DRG's intensity level of medical resource utilization, the higher its NIRRU will be.

NIRRUs are currently determined using data from Maryland adjusted by the MSSS to reflect differences in health care delivery between Maryland and Québec.(1)

- In the ASP+, NIRRUs are used to assess resource utilization in the 150 groups of surgeries used to categorize cases.

(1) The detailed methodology for calculating the NIRRU is presented in Appendix 7 of the normative framework for hospital performance records and can be consulted in the information zone of the Ministère de la Santé et des Services sociaux at the address http://www.informa.msss.gouv.qc.ca/Details.aspx?Id=VYt0lChyVX4=&j=7p8eWWFQyK4=.

3.3 The patient pathway: a structured initiative

The Expert Panel proposes phasing in full patient pathway funding so that funding covers the full care pathway by 2017-2018.

This gradual implementation will allow clinical and financial information systems to be modernized at the same time, since patient-based funding relies on the use of these systems.

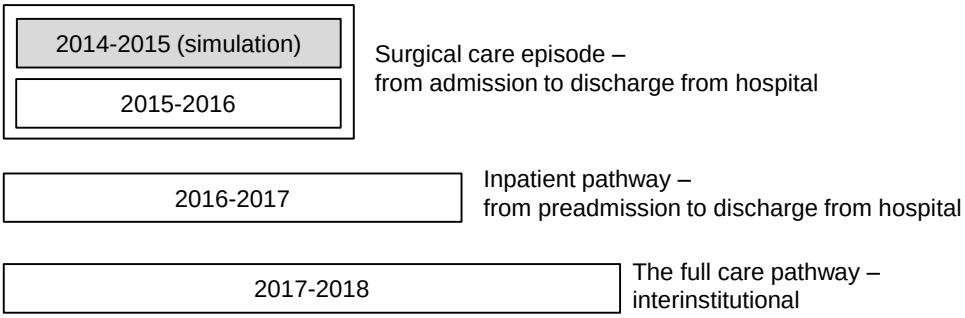
Patient pathway funding will be phased in in three stages:[22]

- funding for the surgical care episode – from admission to discharge from hospital (simulation in 2014-2015 and introduction of funding in 2015-2016);
- funding for the inpatient care pathway – from preadmission to discharge from hospital (2016-2017), which includes the preoperative episode of care and the surgical episode of care;
- funding for the full care pathway – interinstitutional (2017-2018), which includes the preoperative episode of care, the surgical episode of care and the postoperative episode of care.

Progression from one stage to the next mainly depends on the availability and quality of data and on the exchange of information on patients between institutions.

ILLUSTRATION 7

Phasing in full care pathway funding



[22] Section 5.2 of the paper presents the progressive implementation approach in more detail.

❑ The surgical care episode – from admission to discharge from hospital (2014-2016)

Stage one involves funding the surgical care episode, i.e., all care provided to a patient who comes to hospital for surgery, from the time he is admitted to the time he leaves the institution (nursing, surgery, laboratory tests, etc).

This first stage requires surgeries to be classified into the 150 groups proposed and a tariff attributed[23] to each group.

■ Simulation year for funding the surgical care episode (2014-2015)

The year 2014-2015 will be a simulation year for funding, that is, institutions will be told what payment they would have received to fund the surgical care episode without there being any financial implications.

■ Funding for the surgical care episode (2015-2016)

As of 2015-2016, the terms and conditions of ASP+ funding will apply.

❑ The inpatient pathway – from preadmission to discharge from hospital (2016-2017)

Stage two involves funding the entire hospital component of the care pathway. Unlike the first phase, the care provided to a patient before he is admitted to hospital is covered by the program. The care pathway covered spans preadmission to hospital (ambulatory care) to discharge from the institution.

The following work must be carried out in the second stage:

— several clinical databases must be linked so that the full care pathway is covered;

— the costs associated with full care pathways must identified;

— payment methods must be established for situations where several institutions provide services within the same care pathway.

[23] The method used to set tariffs is presented in Section 4.3 of the paper.

❑ The full care pathway – interinstitutional (2017-2018)

The third and final stage is funding the full care pathway across different institutions.

— For example, postoperative rehabilitation services, received in a rehabilitation centre or at home, will be covered by ASP+ funding in this final stage.

Full care pathway funding will support the patient's progress along this pathway and will help ensure smooth coordination between the different institutions.

The linking of various databases undertaken in stage two will bring together clinical and financial information concerning the different procedures on the care pathway.

— For example, databases that cover hospital-based care will have to be linked to databases that cover rehabilitation services, both those provided at home and in a rehabilitation centre.

Thus the total cost of the pathway and the tariff will be determined based on information from several linked databases.

Recommendation 8

Implement patient pathway funding gradually in three stages spanning from 2014-2015 to 2017-2018.

3.4 The concepts of quality and appropriateness

Indicators to assess appropriateness and quality, including considerations of access and services covered, should be included in the ASP+. In accordance with the orientations determined by the Expert Panel, an indicator is selected based on the following criteria:

- its association with a sector or a procedure where deficiencies in access or quality have been observed;
- its reliability and the network's ability to bring about a change in the area covered by this indicator;
- the speed with which the aspect measured by the indicator can be defined and assessed.

Moreover, to minimize the adverse effects of the change in funding method for surgical output, tariff parameters must be accompanied by financial consequences linked to the achievement of indicator targets.

Thus, ASP+ tariffs will be adjusted to take into account the dimensions of quality and access to care. Since adjustments will be based on the indicators selected, institutions will be further encouraged to achieve the desired results.

❑ The indicators selected

■ Quality of care indicators

Four indicators have been selected for quality of care:

- the readmission rate, for all surgical activity or by intervention;
- the hospital mortality rate;
- the postoperative infection rate;
- discharge status (discharged to home, long-term care, etc.), which reflects the quality of care provided and the efficiency of intra- and interinstitutional service organization. This indicator must, however, be used with caution, since some factors beyond institutions' control may introduce a bias in explaining its evolution.

■ Access to services indicators

Two indicators have been selected to cover the dimension of access to services: average wait time and the proportion of cases with excessive wait times.

Average wait time is usually a reflection of the institution's efficiency with respect to service organization and surgical priorities. The proportion of cases with excessive wait times refers to the number of patients on a surgery wait list who wait longer than the recommended wait time. This indicator is used to monitor changes in the number of such cases and generally reflects the efficiency of wait list management processes. The following targets were identified, which satisfy the criteria already established by the MSSS:

- six months for orthopedic surgery;
- 28 days for cancer surgery;
- one year for other types of surgery.

These targets will apply once the ASP+ is implemented. They are likely to change as decisions are made under the national surgery strategy. For certain types of surgeries, in particular heart surgery, wait times vary depending on the urgency and the severity of cases and access indicators must take this into account.

❑ Payment mechanism based on quality and access indicators

To mitigate the risk of the new method of payment having adverse effects on quality and access to care, the financial compensation institutions receive will be influenced by the results obtained for the above indicators.

Thus institutions' efforts to maintain best practices will be recognized and they will be encouraged to achieve and exceed quality and access standards.[24]

❑ Other tools to promote appropriateness and quality of care

▪ Evaluation of clinical processes

The performance indicators described above measure the quality of care provided by institutions. They must, however, be accompanied by clinical process indicators to limit estimation biases that could skew the result.

Clinical protocols must be created in order to evaluate clinical processes. Yet, to prepare funding based on the care pathway, the development of standardized clinical pathways is already included in the ASP+, which will provide a basis for evaluating clinical processes. As mentioned earlier in the paper, the experts recommend that these standardized clinical pathways be developed by clinical committees overseen by INESSS.

In addition, these clinical committees will be able to address the issue of minimum thresholds, also known as safety thresholds, for both quality and accessibility. Indeed, some studies show that for some specialized interventions, a low annual case volume can compromise the quality of care provided.[25] Furthermore, the data used to ensure a safe health care threshold will support service organization.

■ Monitoring appropriateness of care

Appropriateness must be monitored in order to curb volume-driven health care, i.e., the incentive for an institution to perform the highest possible number of surgeries to increase its total budget. Two tools have been identified to monitor appropriateness.

— The expected level of surgical output, a tool to be developed by the MSSS,[26] will provide agencies and institutions with a production reference for certain types of surgeries.

— Interinstitutional comparisons will serve as a reference for institutions to evaluate the appropriateness of their surgical output.

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24 The mechanism for adjusting tariffs based on quality and access indicators is described in more detail in Section 4.3 of the paper.

25 See, for example: David R. URBACH, *Volume and Outcome in Healthcare: Implications for Health Policy*, ICES Report, September 2004.

26 This tool is described in Section 5.1 and Appendix III of the paper.

■ Tool for the interinstitutional comparison of quality of care

Institutions will have to use a tool that will allow them to easily compare their respective quality of care results. A number of quality assessment and improvement programs fulfil this purpose.

For example, the NSQIP[27] is a database that contains 135 quality of care measures with a specific and uniform definition for all participating institutions, making comparisons easier. Furthermore, participating institutions have access to the data, allowing them to measure their performance against that of other institutions.

In addition to the NSQIP, the Expert Panel identified five other potential tools that can be used to compare quality between institutions.[28] The decision as to which tool to use is left to the competent authorities at the MSSS.

Recommendation 9

Take the dimensions of quality and access to care into account in the program.

27 American College of Surgeons National Surgical Quality Improvement Program (NSQIP).

28 These tools are described in: Tony TAYLOR and David MATHESON, *A Surgical Quality Improvement Program for BC: Choosing a Surgical Measurement Tool*, BC Patient & Quality Council, June 2009.

4. FINANCIAL CONSIDERATIONS

When introducing a program to partially review the funding of institutions in the health and social services network, a number of financial considerations must first be taken into account.

With the ASP+, funding is allocated to institutions on the basis of a tariff and the volume of surgeries performed. This type of system can only be implemented after reflecting on the method that will be used to set tariffs, case costing, the terms and conditions of funding for institutions, tools for tracking volumes of surgeries and the determination of the program's budget envelope.

Thus the Expert Panel's proposal to expand the Access to Surgery Program covers the following aspects:

- costs per case;
- the program's budget envelope;
- tariff setting;
- volume tracking;
- funding and governance issues.

4.1 Costs per case

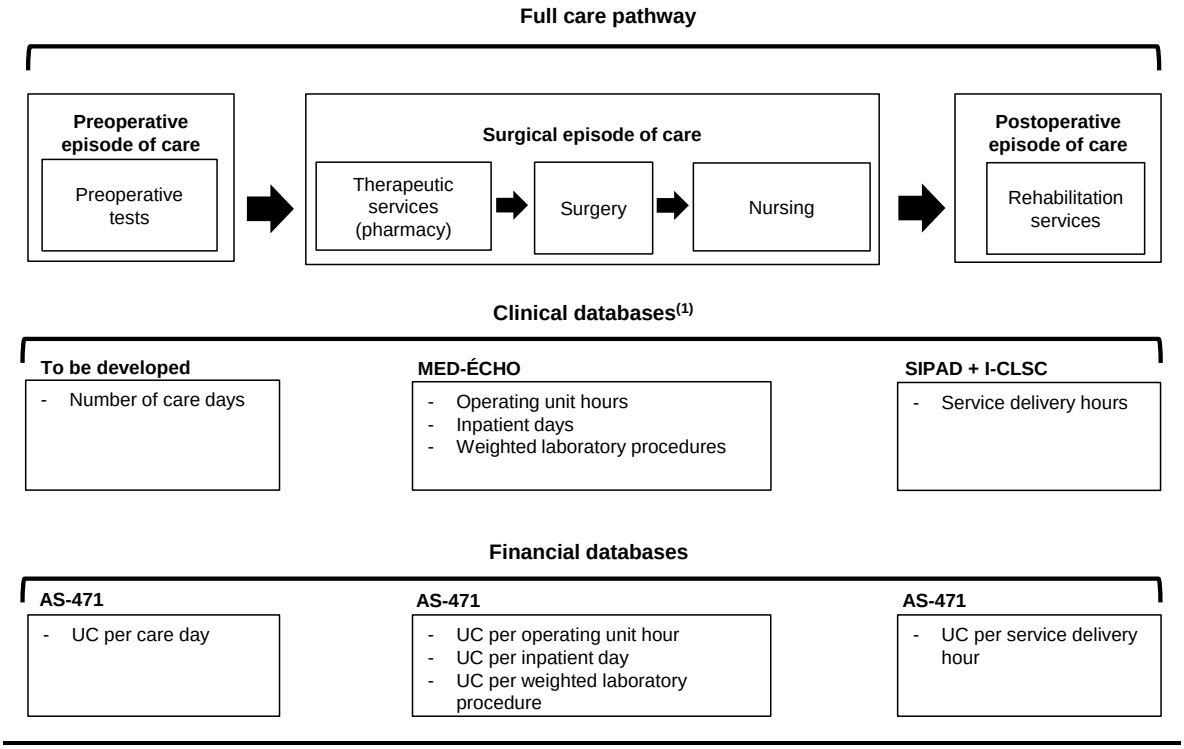
In a large-scale health care system like Québec's, the development of a provincial case costing system provides a valuable management tool for improving our understanding and delivery of health care. In order to implement the ASP+, it is essential to determine costs per case at all levels of the health care system: MSSS, agencies and institutions. For this reason, the ASP+ plans to develop a case costing method.

The Expert Panel has chosen the "top-down" approach to establish costs per case for the ASP+. In this approach, the average cost per recipient of services is obtained by dividing the cost of an activity centre by the number of patients treated there. The top-down approach is used to evaluate costs which are then used to set tariffs.

However, this approach does not allow the institution to explicitly identify the cost for each patient it treats. Ultimately, a shift could be made to a "bottom-up" approach to case costing to obtain more precise information than is possible when using a top-down approach.

ILLUSTRATION 8

Illustration of the role of clinical and financial data in determining costs per case for the patient care pathway



Legend: OU: operating unit; SU: service unit; UC: unit cost; AS-471: institutions' financial report.

(1) The clinical databases in the illustration contain information on case weights and are used to evaluate costs per case, which are then used to set tariffs. Other clinical databases are also used in the ASP+. For example, to categorize the procedures covered, the RAMQ's database is used in conjunction with the MED-ÉCHO database. To track volumes in the short term, RAMQ and SIMASS data are used (in the medium term, there could be shift towards MED-ÉCHO).

❑ The bottom-up approach: a necessary complement

The bottom-up approach involves reporting, for each patient, the cost of the care received along a care pathway, i.e., from entry to departure from the health care system.[29]

For the ASP+, the bottom-up method, as an adjunct to the top-down approach, has two main advantages.

— It provides, per sampling, a more accurate picture of institutions' actual expenditures for each case treated.

— Data from Maryland currently used to calculate NIRRUs could be replaced with data from Québec.

Furthermore, for institutions, a bottom-up approach improves management data, which helps enhance the efficiency of treatment.

Using a bottom-up approach to cost costing is advisable, even necessary given the high degree of accuracy of the information thus obtained. The Expert Panel is, however, aware that it is a costly process that requires considerable adjustments in institutions' processes.

The decision to proceed with a bottom-up approach is directly related to the availability of means to modernize information systems.

— If these means are available, the Expert Panel recommends using a bottom-up approach.

Recommendation 10

Consider adopting a top-down approach[30] to case costing initially, but aim to use a bottom-up approach to the extent that it can be developed, since the bottom-up approach is considered a necessary complement.

[29] See page 60 of the paper on information resources for a detailed description of the bottom-up approach to case costing.

[30] The objectives of a national case costing system, case costing approaches and the methods currently used in Québec are presented in detail in Section 6 of the paper on information resources. The paper on information resources also presents the Expert Panel's recommendation for introducing a single approach and a standardized case costing methodology for institutions and the Expert Panel's recommendation regarding the improvements to be made to this methodology as a provincial management tool available to all institutions.

Prerequisites to implementing a case costing system using the bottom-up method

Before implementing a case costing system using the bottom-up method, clinical databases will have to be redesigned to manage the information relating to the system.

- Implementing a case costing system will require investments in clinical and financial databases.

A reference framework for calculating costs per case will then have to be developed. Indeed, it is important that data be comparable between institutions, i.e., that it is calculated using the same methodology.

- Therefore, if this option is chosen, the MSSS should assume a leadership role in developing a reference framework for implementing a bottom-up approach to case costing. This framework will serve as a standard for implementing costs per case and can be used to obtain standardized information.

4.2 The program's budget envelope

Despite the new method for reimbursing institutions for surgeries, the ASP+ will operate in a context of a closed envelope determined by the government.

Consequently, in order to apply patient-based funding to all surgical output, a prior estimation of the portion of the recurrent envelope allocated to surgeries covered by the ASP+ is necessary.

To finance the ASP+:

- the funds currently allocated to surgery will be recouped;
- these amounts will be included in the ASP+ budget envelope;
- institutions' deficits will not be taken into account when calculating the current surgery budget.

Thus, the ASP+ budget envelope will be based on the total current surgery budget. This envelope will be determined based on the detailed expenditures report for the reference years selected. It will be indexed to obtain an estimate for the 2014-2015 envelope.

❑ Costs included in the calculation of the ASP+ budget envelope

The ASP+ covers operating costs, which include personnel expenditures, for example nurses' salaries, administration expenditures and single-use equipment and devices. Institutions assume these costs in full.

The Expert Panel is aware that a substantial share of physician remuneration is associated with surgical activities. However, since the remuneration of the physicians involved in these activities, mainly surgeons and anesthesiologists, is the subject of agreements negotiated between the government and the Fédération des médecins spécialistes du Québec and administered by the RAMQ, it is not covered by the ASP+.

Furthermore, fixed asset costs, which include the purchase and maintenance of buildings, facilities and long-lasting equipment by health care institutions, are also the subject of special agreements. They are not covered by the ASP+ either.

The inclusion of these types of costs in the program would require a major review of the accounting approach used by the MSSS. With respect to fixed assets, in particular, if this orientation were to be adopted, a methodology should be developed in order to distribute fixed asset costs in costs per case.

❑ Challenges in estimating the budget envelope

Estimating program costs presents certain challenges:[31]

- ensuring the network adheres to the chosen calculation methodology;
- obtaining detailed information on surgery costs;

[31] The response to these challenges is discussed in more detail in Part Three of the paper.

— institutions' ability to manage surgery budgets using funding based on average costs per patient care unit;

— managing possible cost overruns of the program's estimated envelope, since overruns can be caused by fluctuations in volumes of surgeries.

❑ Assumptions used to determine the budget envelope

Certain assumptions must be made in order to determine the budget envelope that will cover the full spectrum of operating costs. In particular, they relate to sharing activity centre costs that are not exclusive to surgeries. These cost-sharing rules will be defined after consulting the health care network.

In order to validate the orientations set out in the cost-sharing rules, the Expert Panel supports the MSSS, which has created an expert committee on financial matters composed of representatives from across the network. The work, which is already underway, will include a consultative process built around the following actions:

— a meeting with agency and institution representatives in order to present a preliminary version of the cost-sharing rules and to obtain feedback from participants;

— the possibility of publishing the cost-sharing rules on the ASP+ Web site, allowing institutions to access them at any time.

Cost-sharing assumptions are used in order to define the proportion of spending on surgery in the total health care envelope.

Lastly, as mentioned previously, for institutions whose surgical activities show a deficit, the amount of the deficit will not be taken into account when calculating the ASP+ envelope.[32]

Recommendation 11

Manage the ASP+ in a context of a closed envelope determined by the government.

[32] The methodology proposed to calculate the ASP+ budget envelope is presented in Appendix II of the paper.

4.3 Tariff setting

A tariff is the amount paid by the government for care provided to a patient. Applied to the ASP+, the tariff corresponds to the reimbursement hospitals receive for each surgery performed.

❑ A tariff for each group of surgeries

A tariff will be determined for each of the 150 groups of surgeries in the ASP+. They were created based on the weight of the procedure and the approach chosen to provide the service (inpatient, day surgery or ambulatory, etc.).

The tariff-based reimbursement is paid to the institution after delivery of the service to the patient.

This method requires the use of a table of correspondence between the "DRG-Procedure codes" in the RAMQ database that are used to track volumes and the "DRG-Groups of surgeries" that are used to determine the reimbursements paid to institutions. This correspondence can be done in the short term. Documentation regarding the 150 groups of surgeries and the tariffs will be published in 2014-2015.

Ultimately, integrating the MED-ÉCHO and RAMQ databases would mean that tariffs could be set based on DRGs and case severity. However, there is not enough information in the RAMQ's existing databases to calculate a tariff per APR-DRG, i.e., for each DRG, taking into account the level of severity of the case treated.

❑ Tariffs based on average cost

For the initial years of the ASP+'s implementation, tariffs will be based on the average cost of each group of surgeries.

— For example, to determine the tariff for hip surgery, the average cost of hip surgery would have to be calculated for all the hospitals participating in the ASP+.

The tariff should take the orientations set out for the episode of care covered into account.

The use of the average cost must be considered a short-term measure. In the longer term, the objective should be to use tariffs that fall slightly below the average cost in order to provide incentives to improve efficiency.[33]

❑ Provincial tariffs

A provincial tariff will be considered for each group of surgeries. Thus a single base tariff would apply per group of surgeries for all institutions participating in the ASP+. These will be calculated based on the weights (NIRRU) for each type of surgery.

The methodology used to set tariffs also reflects the weight for a single group of surgeries in each institution. Funding will be adjusted based on an average severity index, calculated for each group of surgeries in each institution.

To properly meet the objectives behind the introduction of the ASP+, tariffs must be uniform for the same type of surgery, irrespective of where services are provided. This implies that certain special costs will have to be taken into account separately.

Lastly, when allocating budgets to institutions, agencies will have to use the provincially determined tariff. Collaboration with health and social services agencies will be needed to apply this rule.

[33] Ultimately, tariffs should reflect the costs of optimal health care delivery. On this subject, see the paper on best practice funding.

■ Compensation for certain special costs

A fair and equitable patient-based funding system must take the particular nature of some institutions into account.

Consequently, in the context of the ASP+, costs attributable to the particular characteristics of certain institutions will be considered special costs. They are:

— teaching costs;

— costs associated with distance from subspecialty centres;

— costs associated with institutions' specialization.

Special costs will not be included in the ASP+ budget envelope. They will continue to be funded in institutions' global budget.

The experts recommend that the current methodology for special costs analysis continue to be used.

❑ Payment mechanism based on quality and access indicators

ASP+ tariffs will be set so that they promote improved efficiency in the delivery of surgeries. However, it is imperative that enhanced efficiency be achieved while ensuring existing quality of care standards are maintained or improved.

A mechanism must be introduced in the reimbursement received by hospitals for each surgery so that it is adjusted according to whether or not certain targets have been achieved with respect to the indicators. This mechanism will take into account the context of the closed budget envelope for the ASP+ and the need to manage the risk of a decline in quality or access to care.

Payments must be linked to the achievement of quality and access to care targets relative to the indicators in the ASP+. This portion could be in the region of 5%, which is the norm in most other patient-based funding systems elsewhere in the world where this type of mechanism is used.

Payments based on the achievement of targets relative to indicators will be made within the ASP+ envelope.

TABLE 1

Example of the effects of adjustments based on quality and access indicators

	Target[(1)]	Result	Target achieved	Value of adjustments	Calculation of the tariff
Base tariff for surgery					**$5,700**
Quality and access indicators					
– Readmission rate	5%	4%	Yes	$60	$60
– Hospital mortality rate	0.2%	0.1%	Yes	$60	$60
– Postoperative infection rate	2%	3%	No	$60	—
– Rate of discharge to home	80%	86%	Yes	$60	$60
– Wait time	180 days	125 days	Yes	$60	$60
– Proportion of cases with excessive wait times	10%	12%	No	$60	—
TARIFF FOR SURGERY					**$5,940**

(1) Targets are presented for illustration purposes only. They may vary between surgical specialties.

❑ Implementation

The introduction of the ASP+ will bring about a significant change in how participating institutions are funded. A process will be undertaken with clinical experts to monitor and evaluate the implementation of a tariff structure based on the 150 groups of surgeries to prevent any biases or perverse effects that could arise in medical practice.

Recommendation 12

Base tariffs on the average cost of each group of surgeries initially and develop them so that they gradually take quality into account.

4.4 Volume tracking

Tracking volumes plays a key role in patient-based funding.

— It provides the MSSS with a picture of the number of surgeries performed by region.

— It allows agencies to determine the funding to be allocated based on volumes of surgeries. It also allows the supply of services to be linked to a region's needs.

— It allows service providers to project revenues from their surgical output.

However, volume tracking presents certain challenges owing to the associated information requirements.

❑ Use of existing information in the short term

The implementation of the ASP+ must take into account the quantity and quality of the information available.

In the short term, the Régie de l'assurance maladie du Québec's (RAMQ) fee-for-service database will be used to track surgery volumes. The RAMQ's data is wide ranging, which has the advantage of limiting substitution effects, and is available fairly quickly compared with other databases.

The information taken from the RAMQ's database will have to be compared with that of other databases such as MED-ÉCHO and SIMASS for validation purposes.

While the RAMQ's data is sufficient to launch the initiative, volume tracking could be improved if the RAMQ database were linked to complementary data.[34] This would make it possible to:

— increase the quantity and quality of the information available;

— validate the information and complete the RAMQ's database.

■ Volume tracking by agencies and institutions

At present, institutions and agencies do not have access to the RAMQ's disaggregated data. Yet this level of detail is vital for the ASP+ to analyze changes in surgical output from year to year and to allow institutions to compare themselves with other institutions.

The solution proposed in the short term to allow institutions and agencies to track their production volume more closely is to use the SIMASS database.

— The SIMASS database is available in real time for the MSSS, agencies and institutions, with data accessible 7 to 10 days after the end of the period in question.

— While the SIMASS database does not cover all ASP+ surgeries, it nonetheless covers a large proportion of them.

A correspondence table will have to be created for SIMASS data and RAMQ data so that tracking volumes using SIMASS will allow agencies and institutions to link volumes to funding.

— Some agencies had undertaken steps to create this correspondence table; the MSSS has now taken responsibility for doing so.

[34] On this subject, see the paper on information resources in the health and social services sector.

❑ Possible shift towards more accurate information

Ultimately, it would be advisable to use the MED-ÉCHO database given its wealth of clinical data and compatibility with the APR-DRG classification system and NIRRUs, which are used to calculate tariffs.

However, the MED-ÉCHO database has certain limitations in its present form:[35]

— difficulty interpreting the definition of day surgery, which can lead to reporting biases;

— the lack of a clinical database for ambulatory patients;

— the time required to produce data, which only becomes available eight to nine months after the close of a fiscal year.

Given the wealth of the MED-ÉCHO database, the short-term solution to use the RAMQ's data must be accompanied by actions to offset MED-ÉCHO's deficiencies. In parallel with the implementation of the ASP+, work must be undertaken to:

— update MED-ÉCHO's normative framework and provide training to support medical archivists in their work;

— review institutions' internal processes to facilitate the simultaneous entry of information in all the required databases.

— introduce frequent data coding and entry audits;

— develop a strategy to make MED-ÉCHO data available more quickly.[36]

Thus, in the medium term, a transition towards MED-ÉCHO as the main database for tracking surgical output volumes will be reviewed.

Recommendation 13

Use existing tools to track volumes in the short term, while continuing development to obtain more accurate information.

[35] Section 4 of the paper on information resources presents the main gaps in clinical/administrative information in the health sector.

[36] The work described here is part of a larger clinical/administrative information development project described on page 76 of the paper on information resources.

4.5 Funding and governance issues

❑ Funding based on volumes and tariffs

For the ASP+ budget, as for the remainder of the physical health budget:

— the envelope will be allocated between regions using the MSSS's current method of allocation;

— regional agencies will be responsible for distributing the portion of the envelope they have been attributed among the institutions in their region.

However, the method for distributing the ASP+ envelope among institutions differs from the method used to distribute the remainder of the physical health budget.

With the ASP+, the funding an institution receives for its surgical activities[37] is the product of the volume of surgeries performed and the provincially determined tariff for each type of surgery rather than being based on historical data.

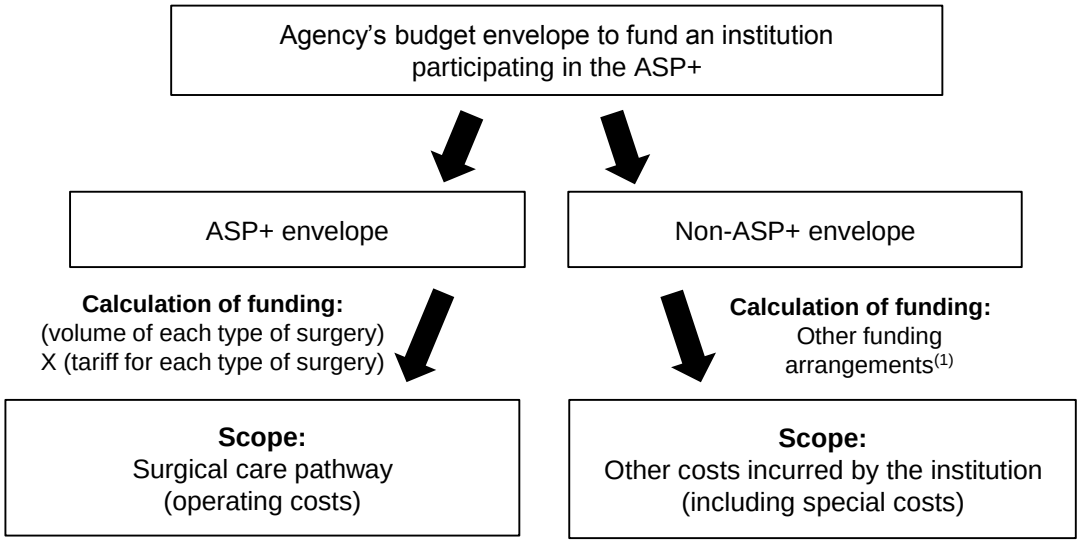
— The volume of surgeries performed by each institution is the result of a discussion between institutions and agencies and is an integral part of the management agreement.

— However, the tariff for each surgery is determined provincially and is applied by agencies without any modification.

The approach adopted to take special costs into account and the threshold established to determine eligibility to participate in the program significantly reduce the risk that the tariff might not be representative of the cost incurred by institutions.

ILLUSTRATION 9

Agency funding of institutions participating in the ASP+



(1) Other funding arrangements may, for example, refer to historical budgets with performance components.

[37] More specifically, these refer to the operating costs for surgical care pathways covered by the ASP+, excluding costs associated with institutions' particular characteristics (remoteness, specialization, teaching).

■ End-of-year reconciliation

Funding is allocated to institutions at the start of the fiscal year based on the surgery volumes agreed upon between institutions and agencies. Yet, since the volumes performed during the year can deviate from those initially agreed upon, they must be reconciled at the end of the year.

At the end of the fiscal year, funding is therefore estimated again using the information available on production volumes performed during the year and taking the achievement of access and quality objectives into account. The funding the institution receives is then adjusted upwards or downwards.

To prevent these budget adjustments from having a significant impact on the next fiscal year, it is important to track production volumes so that funding can be adjusted as accurately as possible during the current fiscal year.

❑ Sound governance is necessary to introduce this type of funding

The MSSS's management of the ASP+ budget envelope and regional agencies' management of surgery volumes in a region's institutions must follow two rules:

— "the money follows the patient";

— access and quality standards must be respected.

The first rule is intended to align the services provided in an institution or region with the funding received.

— It must be applied with due regard to regionally and provincially determined service organization and prioritization methods.

The second rule is directly related to agencies' and the MSSS's responsibility, namely, to ensure equitable access for all.

— This means that all surgical activity must be monitored to prevent the perverse effects of patient selection, that is, the monopoly of an institution's or a region's resources by certain types of surgery at the expense of other services that are essential to the population.

Recommendation 14

Fund institutions' surgical activities based on the product of the volume of surgeries performed and the provincially determined tariff for each type of surgery rather than on historical data.

Health and social services agencies:
an important contribution to the program's smooth operation

Under this new method of funding surgeries covered by the ASP+, agencies are responsible for determining surgical output volumes with institutions, thus giving them the necessary margin for manoeuvre to align institutions' supply of services more closely with population needs.

Indeed, while tariffs are determined centrally, the distribution of volumes by agencies allows them to play a key role in the organization and prioritization of services.

To plan regional surgical output, agencies must:

- assess the needs of the territory's population;
- monitor the supply of surgical services;
- take institutions' situation into account.

PART THREE:
HOW TO MANAGE THE CHANGE AND THE RISKS

5. HOW TO IMPLEMENT THE CHANGE

Implementing patient-based funding in the surgical sector is an ambitious initiative; it involves changing existing processes at all levels of the system and encompasses several components (clinical, financial and information components).

The Expert Panel has therefore been particularly attentive to how the change should be managed.

The strategy recommended to ensure the proposed changes are implemented smoothly is built around a number of points:

— the integrated management of the initiative by creating a project management team and by anchoring the ASP+ in a national surgery strategy, and transparency in processes and methodology changes, both for clinicians and administrators;

— the development of transition mechanisms for several aspects of the program (patient pathway funding, tariffs, performance management, production of clinical and financial data, etc.);

— a strategy to involve the network in the development of the program's parameters and ensure effective communication with the various stakeholders concerned;

— the monitoring and evaluation of the initiative.

5.1 Integrated and transparent management

❑ A project management team

To ensure the changes proposed in the ASP+ are implemented smoothly, the experts believe that a project management team is necessary to:

— communicate the vision of the ASP+ and the national surgery strategy in which it is anchored;

— disseminate information about the program throughout the entire network;

— act as a primary reference for stakeholders at the local and regional levels of the system so that they can share their questions, concerns and suggestions regarding the program;

— oversee consultation initiatives with the network;

— promote coordination among the different stakeholders at the central level;

— coordinate the monitoring and evaluation of the program.

❑ Tools for monitoring and managing surgical output for all levels of the system

As mentioned previously, the experts recommend adopting a more comprehensive vision of surgery by developing a national surgery strategy and making the ASP+ part of this strategy.

In addition to identifying the objectives to be achieved in surgery and defining the roles of the various network stakeholders in achieving these objectives, this strategy will comprise tools for monitoring and managing surgical output for the network.

These tools will be used to:

- estimate the population's surgical needs by institution and therefore the expected output by institution;
- assess institutions' surgical output capacity;[38]
- monitor surgical output and wait times.

This information provides a reference for the MSSS, agencies and institutions to support the management of surgical output.

- It will, in particular, help shed light on certain problems regarding access and can be used as a starting point for understanding the sources of the disparities between supply and demand for surgeries and suggest possible solutions.[39]

Existing tools can be used and new tools developed as necessary.

Recommendation 15

Ensure the integrated management of the initiative by creating a project management team and by anchoring the ASP+ in a national surgery strategy.

[38] Institutions' output capacity is estimated using, for instance, data on physician availability from the CONSOM database (Standardized Supply and Consumption of Physician Services) and data on the number of surgeries per physician from the SIMASS database.

[39] The tools for monitoring and managing surgical output are presented in more detail in Appendix III of the paper.

❑ Transparent implementation and management of the ASP+

Since lack of transparency is one of the weaknesses of the current access to surgery program, special attention is given to transparency in the implementation and management of the ASP+.

This desire for transparency concerns both information presented to the health care network and to the population.

- The implementation stages of the ASP+ are clear, both with respect to their content and their time frame.
- The eligibility criteria for institutions are known and justified.
- Tariffs are determined centrally, after collaboration with a committee of experts on clinical and financial issues, and the methodology used to determine tariffs is disclosed.
- Agencies are invited to show transparency in the process used to determine production volumes with institutions and the results of these discussions will be included in management agreements.
- The health care network is consulted to establish cost-sharing rules in order to determine the program's budget envelope.
- Quality and access objectives are defined by indicators and the mechanism for taking these indicators into account in the tariff is clearly set out.
- The transition measures planned to limit the financial risks for institutions and agencies will be communicated to the entire network prior to implementation of the program and any changes to these measures resulting from annual reviews of the program will be disseminated every year.
- The program will be monitored and evaluated.
- A Web site dedicated to the ASP+ will present information concerning surgical output, funding estimates and various indicators, such as those for access to services and quality of care.[40]

Recommendation 16

Ensure processes and changes in methodology are transparent, for clinicians, administrators and the population.

[40] See Section 5.3 for further information on the communication strategy.

5.2 The importance of a transition period

Introducing patient-based funding in the surgical sector presents a number of challenges, in particular because the ASP+ is much broader in scope than the ASP.

Some of the differences between the ASP and the ASP+ are presented in the table below and help us appreciate the changes to be made.

TABLE 2

Summary of the main parameters of the ASP and the ASP+

	ASP	**ASP+**
Surgery volumes covered	Volumes of additional surgeries compared with 2002-2003	For the types of surgery covered, all surgical output is covered
Types of surgery covered	Most types of surgery (excluding certain types of surgery such as tertiary cardiology)	Almost all types of surgery (including tertiary cardiology)
Minimum production threshold	—	1,000 weighted cases
Eligible institutions	All institutions that perform surgeries(1)	52 institutions
Budget envelope(2)	$189M	$1,673M
Categorization of surgeries in order to determine tariffs	16 groups of surgeries (16 tariffs)	150 groups of surgeries (150 tariffs)
Recognition of special costs	—	Recognition of special costs associated with teaching, specialization and remoteness

(1) With very few exceptions, all institutions that perform surgeries are eligible for the ASP.
(2) Due to the availability of data, for the ASP, the budget envelope for 2012-2013 is shown in the table, while the estimated budget envelope for 2014-2015 is shown for the ASP+.

❑ Episode of care covered

At present, not all the prerequisites to implementing funding of the full care pathway have been met.

— Since existing clinical data is not linked across the entire care pathway, a patient's progress from preadmission to post-discharge care cannot be accurately tracked.

— In addition, only the episode of care from admission to discharge from hospital is well known in terms of the resources required to provide the care needed (case weight); this data is not available, for example, for ambulatory activities, rehabilitation centres and home care.

— Furthermore, linking financial data to each of the components of the continuum of care is complex at present.

— Lastly, standardized clinical pathways, on which care pathway funding is based, must be developed.

The experts therefore propose a three-stage implementation process, allowing the various levels of the network to put the necessary conditions in place to achieve full care pathway funding.

❑ The funding of surgeries

The Expert Panel proposes that the first year of implementation of the ASP+, 2014-2015, be a simulation year.

— For the first year, tariffs will be announced, but funding for surgeries will continue to be allocated using the current model. The ASP will therefore continue in 2014-2015.

— This simulation year will allow the various levels to become familiar with the parameters of the ASP+ and at the same time develop the clinical and financial information needed for the new system. It will also allow institutions to adjust their processes before the new funding method is introduced.

As of 2015-2016, the tariffs will be used to determine the funding allocated to institutions. This stage will mark the coming into effect of the ASP+.

❑ Taking quality of care and access to care into account in tariffs

Taking quality of care and access to care into account in tariffs will be a three-stage process:

— In 2014-2015, the first year of the ASP+, the indicators that will be used to measure access and quality will be presented and institutions' results for these indicators will be published.

— The year 2015-2016 will be a simulation year: without there being any financial consequences, institutions will be informed of the financial implications the results obtained for the quality and access indicators would have had if they had been taken into account in the tariffs.

— As of 2016-2017, the achievement of quality and access objectives will be taken into account in the reimbursement to institutions based on tariffs so that these financial consequences promote appropriateness, quality and access to care.[41]

[41] For further information on the indicators and how they will be taken into account in the tariff, see Sections 3.4 and 4.3

This gradual implementation is crucial, since institutions do not all have equivalent information on quality and access to care in their institution.

By making the information available, the first stage gives institutions tools to evaluate the quality of their service delivery, while the second stage encourages them to improve this quality yet remain within the limits of their ability to adapt.

❑ Simultaneous development of clinical and financial information systems

The Expert Panel proposes adopting a pragmatic approach to the information requirements of patient-based funding by starting with data that is available immediately and simultaneously developing clinical and financial information systems.

Thus RAMQ data will be used to track volumes for the moment, since it meets the main information requirements for doing so.

— The possibility of integrating this data into a complementary database or switching to MED-ÉCHO to track volumes will be examined along the way.

Similarly, the “top-down” approach described in Section 4 will be used to determine costs per case owing to its immediate applicability.

— The possibility of switching to a more accurate, bottom-up approach to evaluate costs per case will be examined at a later date.

Recommendation 17

Use transition mechanisms for several aspects of the program (patient pathway funding, tariffs, performance management, production of clinical and financial data, etc.).

❑ Summary of the gradual implementation process

To ensure the expansion of Access to Surgery Program proceeds smoothly, the ASP+ will be implemented gradually on several levels:

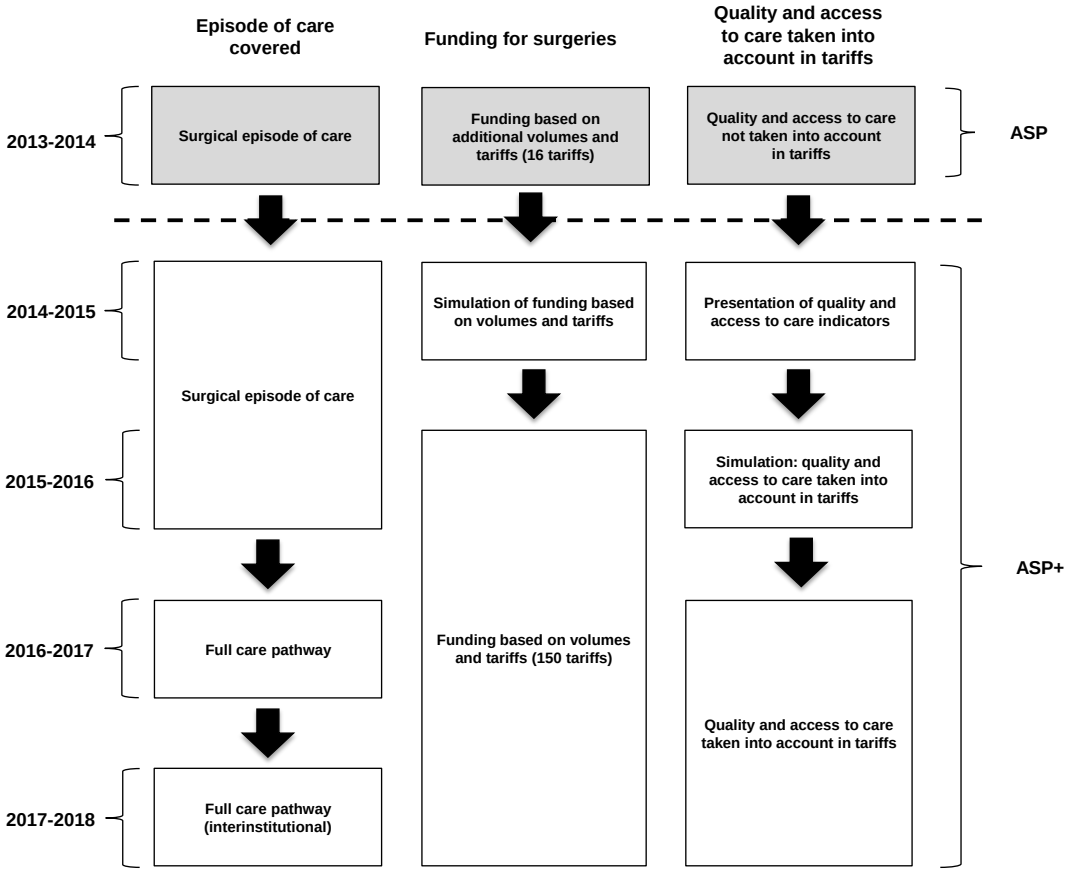
— the episode of care covered;

— the stages of funding for surgery;

— the consideration of quality and access to care in the tariffs.

ILLUSTRATION 10

Summary of the gradual implementation of the ASP+



Note: As mentioned previously, clinical and financial information systems will be developed simultaneously and the systems and databases used for the ASP+ will evolve over time. However, since this will not take place according to a fixed schedule, it is not presented in the illustration.

5.3 A communication and collaboration strategy

The successful implementation of patient-based funding means that all the stakeholders concerned must share a common vision, that everyone must have a clear understanding of the parameters, that the network must adopt the program and that the stakeholders must have the necessary tools to play their role. To this end:

— the network will be consulted so that it can collaborate in the development of some of the program's parameters;

— a communication and training strategy will be implemented to distribute information on the methodology of the ASP+ and the program implementation process throughout the network.

❑ Collaboration is key to achieving the program's objectives

The network and external partners will be consulted regarding the development and identification of the program's main parameters:

— the national surgery strategy;

— standardized clinical pathways;

— the cost-sharing rules that will be used to determine the program's budget envelope;

— tariffs;

— the strategy for monitoring and evaluating the ASP+.

❑ Communication and training

The information to be distributed throughout the network is multidimensional.

— First, the vision behind the ASP+, the national surgery strategy and the method of collaboration between clinicians and managers must be presented.

— The program's methodology must then be explained: surgeries covered, estimated budget envelope, care pathway, tariffs, access and quality indicators, program implementation schedule, etc.

— Lastly, to improve management for institutions and agencies and promote increased transparency, the results of the program with respect to surgical output and access and quality of care indicators must be disseminated.

The experts propose using a number of tools to disseminate this information and give the network the means to ensure the program is successful:

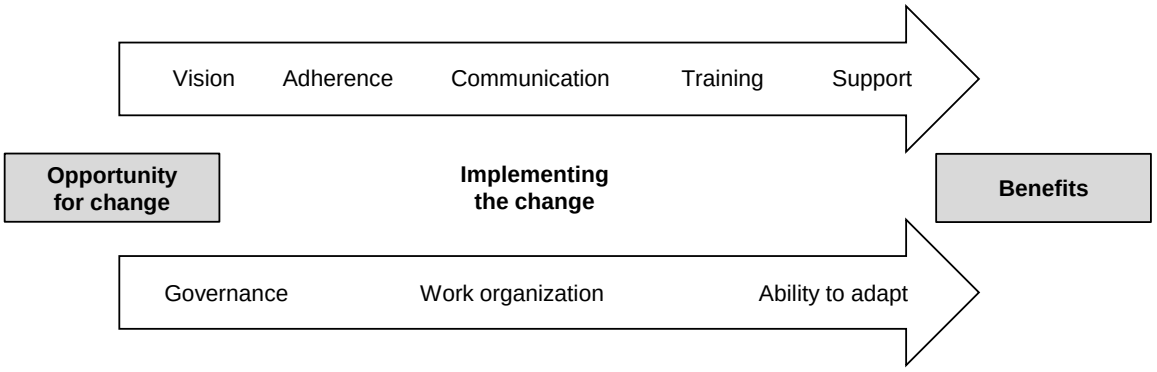
— a Web site launched before the initiative begins that includes a forum for discussion and where questions can be answered

— information tours and sessions for agencies and institutions as well as for certain professionals who will have to master new tools or carry out new tasks, such as medical archivists;

— active participation of the network in transfer of knowledge activities.

ILLUSTRATION 11

Elements of an effective communication strategy



Recommendation 18

Adopt a strategy to involve the network in the development of the program's parameters and ensure effective communication with the various stakeholders concerned.

5.4 Monitoring and evaluation of the initiative

A strategy to monitor and evaluate results should be developed and launched at the same time the initiative itself is developed.

The Expert Panel believes that the responsibility for developing this strategy lies with clinical directors and managers, who are stakeholders and accountable for the results of the initiative. Therefore, it should be developed by the MSSS after consulting various network stakeholders in order to help them to:

- regularly monitor and evaluate the results of the ASP+ and the effectiveness of the program's management methods;
- adjust to fluctuations in institutions' volume of surgical output from year to year and other changes in the supply of services;
- make informed decisions, in a timely manner, regarding the measures required to refocus the program on its objectives, if necessary;
- obtain credible and relevant information to support their evaluation.

In addition to covering the evaluation of the financial and clinical impacts of the ASP+, the strategy for monitoring and evaluating results should include procedures to allow institutions to make comparisons among themselves as well as self-evaluation procedures for institutions.

The experts believe that this strategy must be part of the evaluation of the performance of the health care system.

❑ The content of the evaluation framework

The purpose and objectives of the ASP+ should be central to the evaluation framework. For each indicator in the evaluation framework, the latter must identify:

- the targets to be achieved with respect to the health care system's main objectives, namely, access, quality, appropriateness, equity and efficiency;
- the data required to assess the indicator, its source, the method and frequency of collection;
- the assignment of responsibilities for data collection and analysis and the information systems supporting the evaluation.

Furthermore, the resources allocated to the monitoring and evaluation of the program must be identified when the initiative is launched.

Recommendation 19

Develop a strategy to monitor and evaluate results that will be launched at the same time the initiative itself is developed.

6. HOW TO MANAGE THE RISKS

The introduction of a patient-based funding method may involve risks, both clinical and financial. The Expert Panel has therefore identified three main levers to counteract the risks that might compromise the results the ASP+ is hoping to achieve. The three levers are:

— give institutions the means to adapt;

— maintain budget control;

— manage operational risks.

The Expert Panel also recognizes the importance of managing the risks associated with quality and appropriateness of care. The approach recommended to promote appropriateness and quality of care, in particular the consideration of these aspects in the tariffs, was presented in Section 3.4 of the paper.

6.1 Give institutions the means to adapt

The introduction of the ASP+ will bring about changes on several levels for participating institutions. One of the most obvious changes is that at the beginning of the year, institutions will not know, with certainty, their budget envelope for surgery.

The Expert Panel believes it is important that the change in the method used to fund surgery does not affect institutions' global funding in such a way that it might compromise quality and access to care, including in sectors other than surgery.

Remember that a transition period has been proposed for implementing the ASP+.[42] This will allow the different network components to familiarize themselves with the new context and plan their budget accordingly.

Furthermore, a communication strategy, such as the strategy proposed by the Expert Panel, is a key factor in the success of the ASP+ initiative, in particular to allow institutions to understand the factors that influence their funding. This will enable institutions to improve their processes.

❑ Financial consequences must be limited

Despite the above-mentioned measures, the Expert Panel believes that an additional measure is necessary to take institutions' financial capacity to absorb changes in their funding into consideration.

Therefore, adjustment limits will be set after consulting agencies. These limits will mean that an institution will not see its global funding vary beyond a certain level following the introduction of the ASP+. This measure will, however, be temporary.

Measures to limit financial consequences are already applied in the health and social services network. These measures prevent sharp drops in funding for institutions and agencies that could affect the services provided to the population.

For example, transition measures were implemented in 2011 after changes were made to certain parameters of the Access to Surgery Program. These measures were intended to reduce any funding disparities resulting from the changes introduced.

[42] The different components of the transition period were presented in more detail in Section 5.2.

— These measures provide for the phasing in of financial consequences resulting from the introduction of the new parameters between 2011-2012 and 2013-2014. Full consideration of the changes in the parameters of the Access to Surgery Program will not come into effect until 2014-2015.

The Expert Panel believes that it is necessary to build on the experience acquired in the use of this type of transition measures.

— For example, budget variations for institutions could be temporarily limited to 3% of the surgery envelope the first year the ASP+ is implemented and to 5% in subsequent years.

— Relative to the ASP+ budget envelope, a variation of 5% is equivalent to the potential efficiency gains measured based on deviations from the average cost.

Limiting financial consequences: the example of Germany

When a patient-based funding system was introduced in Germany, two temporary measures were implemented to limit the financial consequences for institutions.

Firstly, from 2005 to 2010, institutions' base tariffs were gradually adjusted to national base tariffs. In 2005, the base tariff applicable to an institution was set at 15% based on the national base tariff. The remaining proportion of an institution's base tariff was based on the institution's own data.

The share of the national tariff in institutions' base tariffs was gradually increased (35% in 2006, 55% in 2007 and 75% in 2008) to reach 100% in 2009.

Secondly, budget reductions were limited. They were limited to 1% in 2005 relative to the 2004 budget. In 2009, the limit was increased to 3% relative to the 2008 budget. As of 2010, budget reductions were no longer limited.

Recommendation 20

Give institutions the means to adapt, while temporarily limiting financial consequences.

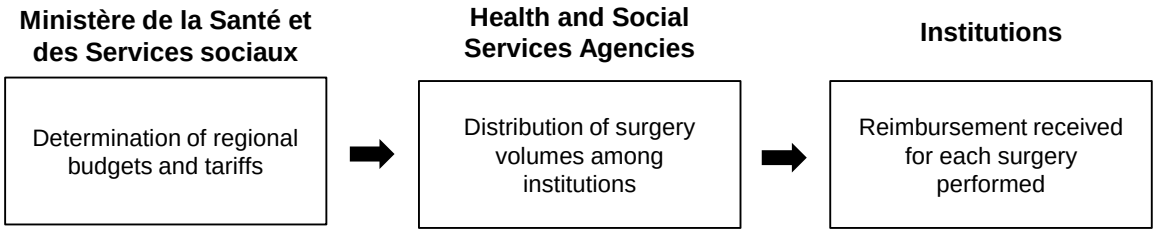
6.2 Maintain budget control

The introduction of patient-based funding may increase the budgets allocated to health due to the increase in health care volumes.[43] In some cases, an increase in volumes was one of the objectives of implementing patient-based funding.

One of the ASP+'s challenges will be to ensure adequate budget control, both for the MSSS and for agencies. Measures to ensure that health care expenditures respect the overall budgets allocated to the sector must therefore be developed.

ILLUSTRATION 12

Distribution method for the ASP+ envelope



❑ Budget control by the MSSS

The Expert Panel is aware that one of the ASP+'s challenges is that funding must be provided in a closed envelope. The MSSS will therefore have to estimate an expected level of output in order to adjust the program's parameters.

The expected increase in volumes will be taken into consideration when determining the program's budget envelope in order to limit the risk of uncontrolled increases in program costs.

The estimated expected output for each region will be compared with the volumes observed so that steps can be taken if there are significant disparities.

The MSSS will implement measures to prevent the changes in the method of funding surgery from resulting in significant budget variations for regions. The MSSS will have to maintain its objective of funding based on equitable access criteria (allocation method) and prevent the growth of regional disparities in resources that might result from the introduction of the ASP+.

Lastly, to limit disparities in volumes in institutions, volumes will be included in management agreements. Furthermore, institutions will be provided with tools to track volumes.

[43] See, for example: Jason M. SUTHERLAND et al., *Reviewing the Potential Roles of Financial Incentives for Funding Healthcare in Canada*, Canadian Foundation for Healthcare Improvement, December 2012, [Online], [http://www.cfhi-fcass.ca/Libraries/Reports/Reviewing-Financial-Incentives-Sutherland-E.sflb.ashx].

❑ Budget control by agencies

Agencies will maintain budget control by determining production volumes with institutions. The results of these discussions will be included in management agreements, which ensures reporting and accountability with respect to results, an essential step in the sound management of public funds.

To assist them in this mandate, they will be able to use the tools for monitoring and managing surgical output described in Section 5.1 and Appendix III of the paper.

Indeed, with these tools, references for population-based output by institution can be created and compared with other indicators such as supply of services and wait times in order to determine production ranges.

— These ranges will be used by agencies to distribute surgical output within their region.

Recommendation 21

Define and implement measures to maintain budget control.

6.3 Manage operational risks

While patient-based funding is a new initiative for Québec, it has been in place in a number of other countries for several years. Experiments in other countries and studies conducted on them highlight some operational risks associated with patient-based funding.[44]

The following two elements must be taken into account when the ASP+ is implemented:

- the risk of upcoding;
- the risk of patient selection.

❑ Risk of upcoding

Coding refers to the operation whereby an institution reports a patient's treatment based on case characteristics. Coding is necessary to determine which group of surgeries the case will be attributed to; the institution is then reimbursed based on the tariff applicable to this group of surgeries.

Upcoding occurs when an institution provides inaccurate information in order to obtain a higher reimbursement than the tariff normally applicable to the case.

At present, only general comparisons of the severity of cases treated by institutions are used to assess issues related to upcoding. Moreover, there are few financial consequences or adjustments when upcoding is detected.

New measures will be developed as part of the ASP+ to limit the risks of upcoding.

■ Controlling upcoding in the ASP+

Even before the concrete ASP+ initiative is launched, an update of the MED-ÉCHO reference framework is suggested. The purpose in doing so is to clarify coding criteria so that they better reflect medical practice and to clarify any grey areas.

The MED-ÉCHO update will also allow medical archivists to interpret certain entries more objectively. In addition, training and support programs will be provided to archivists to ensure cases are coded properly.

In the first year of the ASP+, statistical tests will be performed randomly to validate coding. During this initial stage, there will be no financial consequences associated with the tests, which will be used to inform institutions.

During the second stage, audit processes will be introduced. Financial consequences may be associated with audit results. Audits will either be targeted based on the statistical test results or random.

[44] See, for example: Joanne CASTONGUAY, *Analyse comparative des mécanismes de financement des hôpitaux*, CIRANO, March 2013.

❑ Risk of patient selection

The groups of surgeries in the ASP+ are groups of procedure codes considered homogeneous both clinically and in terms of resource utilization.

— However, this does not mean that every case attributed to a group of surgeries requires the same quantity of medical resources.

Thus a reimbursement system such as the ASP+ that includes a single base tariff for each group of surgeries is equitable insofar as these variations are random and are not associated with a particular type of patient or institution.

Should this not be the case, the risk of patient selection must be anticipated. This can occur when institutions are able to identify patients with medical resource needs that are higher than the average for cases in the same patient group. There is an incentive for institutions to postpone management of these cases, which are associated with higher costs.

Some of the characteristics of the ASP+ mentioned previously will mitigate the risk of patient selection.

— By adjusting the rate based on the average severity of the cases treated in an institution, institutions that treat more costly cases will receive a higher reimbursement. By linking reimbursement to treatment costs, the risk of seeing a costly case left untreated is greatly reduced.

— Special costs (teaching, distance from subspecialty centres and specialization) will be taken into account and will continue to be funded in institutions' global budget.

— Lastly, since tariffs take into account an indicator for patients who wait longer than the recommended wait time, there is a greater incentive to refrain from postponing the treatment of a more complex case too long.

Recommendation 22

Mitigate the operational risks of upcoding and patient selection.

7. THE EXPERT PANEL'S RECOMMENDATIONS

The Expert Panel makes a number of recommendations for implementing patient-based funding in the surgical sector in order to improve access to care, appropriateness and quality of care, equity and efficiency in service delivery.

These recommendations can be grouped by theme:

- the general principles of the approach recommended;
- the clinical aspects of the ASP+;
- financial considerations;
- the implementation of the change;
- how to manage the risks.

❑ The general principles of the approach recommended

Recommendation 1

Expand the Access to Surgery Program, make the ASP+ one of the concrete initiatives proposed to implement patient-based funding in Québec and link the program to quality objectives.

Recommendation 2

Align the ASP+ with the main orientations of a high-performing health care system, namely, access to care, appropriateness and quality of care, equitable and efficient service delivery.

Recommendation 3

Develop a national surgery strategy to make actions more effective and coherent.

Recommendation 4

Ultimately, fund the entire care pathway in accordance with the terms and conditions of patient-based funding and allocate funding based on a patient's full care pathway rather than on each of its stages.

Recommendation 5

Adopt a pragmatic approach and implement the ASP+ gradually, using existing data and conditions initially and introducing further changes once the necessary conditions are in place.

❑ The clinical aspects of the ASP+

Recommendation 6

Cover all surgeries in order to enable institutions to improve their service management and to prevent certain adverse effects, such as priority being given to certain types of surgeries at the expense of other surgeries.

Recommendation 7

Adopt a threshold of 1,000 weighted cases per year to determine institutions' eligibility and continue to fund institutions that carry out surgical activities but remain below this eligibility threshold using an historical approach, while also providing for performance mechanisms that include the dimensions of quality, appropriateness and safety.

Recommendation 8

Implement patient pathway funding gradually in three stages spanning from 2014-2015 to 2017-2018.

Recommendation 9

Take the dimensions of quality and access to care into account in the program.

❑ Financial considerations

Recommendation 10

Consider adopting a top-down approach to case costing initially, but aim for a bottom-up approach to the extent possible, since the bottom-up approach is considered a necessary complement.

Recommendation 11

Manage the ASP+ in a context of a closed envelope determined by the government.

Recommendation 12

Base tariffs on the average cost of each group of surgeries initially and develop them so that they gradually take the concept of quality into account.

Recommendation 13

Use existing tools to track volumes in the short term, while continuing development to obtain more accurate information.

Recommendation 14

Fund institutions' surgical activities based on the product of the volume of surgeries performed and the provincially determined tariff for each type of surgery rather than on historical data.

❑ How to implement the change

Recommendation 15

Ensure the integrated management of the initiative by creating a project management team and by anchoring the ASP+ in a national surgery strategy.

Recommendation 16

Ensure processes and changes in methodology are transparent, for clinicians, administrators and the population.

Recommendation 17

Use transition mechanisms for several aspects of the program (patient pathway funding, tariffs, performance management, production of clinical and financial data, etc.).

Recommendation 18

Adopt a strategy to involve the network in the development of the program's parameters and ensure effective communication with the various stakeholders concerned.

Recommendation 19

Develop a strategy for monitoring and evaluating results that will be launched at the same time the initiative itself is developed.

❑ How to manage the risks

Recommendation 20

Give institutions the means to adapt, while temporarily limiting financial consequences.

Recommendation 21

Define and implement measures to maintain budget control.

Recommendation 22

Mitigate the operational risks of upcoding and patient selection.

APPENDICES

APPENDIX I: ELIGIBLE INSTITUTIONS

The table below presents a list of the institutions eligible for the ASP+ based on the minimum production threshold of 1,000 weighted cases. The number of raw cases and the number of weighted cases are presented for each institution based on 2011-2012 data.

Group	Region	Code	Name of the hospital centre	Nb – Raw	Nb – Weighted
1	9	13160395	CSSS de Sept-Îles	3,984	1,362.20
1	16	11044591	CSSS La Pommeraie	4,827	1,655.70
1	12	11044500	CSSS de Montmagny-L'Islet	5,251	2,041.90
1	8	11044468	CSSS Les Eskers de l'Abitibi	4,646	2,526.10
2	8	11044484	CSSS de la Vallée-de-l'Or	3,445	1,088.60
2	8	11044476	CSSS de Rouyn-Noranda	3,931	1,114.50
2	9	11044351	CSSS de Manicouagan	4,262	1,153.00
2	15	11044013	CSSS des Sommets	3,320	1,155.90
2	2	11044187	CSSS Domaine-du-Roy	4,689	1,644.50
2	4	11044385	CSSS de l'Énergie	5,144	1,674.20
2	16	11044567	CSSS Pierre-de-Saurel	4,424	1,788.60
2	12	11044492	CSSS de la région de Thetford	5,003	1,955.60
2	1	11044104	CSSS de Rivière-du-Loup	4,950	1,998.90
2	2	11044179	CSSS de Lac-Saint-Jean-Est	5,803	2,116.60
2	12	11044526	CSSS de Beauce	6,212	2,328.50
2	16	12399044	CSSS de la Haute-Yamaska	7,157	2,499.40
2	6	11044278	CSSS d'Ahuntsic et Montréal-Nord	7,874	2,579.10
2	6	11044229	CSSS de Dorval-Lachine-Lasalle	9,047	2,927.40
2	4	11044120	CSSS d'Arthabaska-et-de-l'Érable	9,854	3,540.00
2	6	11044286	CSSS du Cœur-de-l'Île	6,401	3,840.10
2	4	11044377	CSSS Drummond	10,957	4,004.50
3	16	11044575	CSSS du Suroît	7,103	2,842.80
3	16	11044583	CSSS Jardins-Roussillon	10,640	3,535.50
3	1	11044096	CSSS de Rimouski-Neigette	9,529	3,582.20
3	15	11044443	CSSS du Lac-des-Deux-Montagnes	8,659	3,623.60
3	6	11044211	CSSS de l'Ouest-de-l'Île	9,206	3,646.40
3	6	11044237	CSSS du Sud-Ouest–Verdun	7,418	3,710.50
3	16	11044609	CSSS Richelieu-Yamaska	11,554	3,798.10
3	6	12420774	Hôpital Santa Cabrini	7,787	4,029.30
3	16	11044542	CSSS Haut-Richelieu–Rouville	11,898	4,459.30
3	14	11044203	CSSS du Sud de Lanaudière	13,175	5,068.50
3	14	11044435	CSSS du Nord de Lanaudière	13,557	5,209.10
3	6	12745725	Centre hospitalier de St. Mary	17,751	6,766.10
3	16	11044534	CSSS Pierre-Boucher	19,872	7,868.20
3	15	11044450	CSSS de Saint-Jérôme	23,845	8,369.20
3	4	11044898	CSSS de Trois-Rivières	19,587	9,018.20
3	13	11044344	CSSS de Laval	24,570	9,549.30
3	7	11044419	CSSS de Gatineau	22,694	10,311.90
4	6	12694659	Centre hospitalier universitaire Sainte-Justine	14,423	5,238.90
4	12	11044872	CSSS Alphonse-Desjardins	13,583	6,031.00
4	16	11044930	CSSS Champlain–Charles-Le Moyne	17,645	7,789.50
4	2	11044195	CSSS de Chicoutimi	17,661	8,330.90
4	6	12934659	Hôpital Maisonneuve-Rosemont	23,858	10,489.30
4	6	12431656	Institut de cardiologie de Montréal	10,533	10,657.20
4	6	12685608	Hôpital général juif Sir Mortimer B. Davis (L')	24,046	11,900.20
4	6	12475976	Hôpital du Sacré-Cœur de Montréal	17,749	13,336.70
4	3	13623616	Inst. univer. de cardiologie et de pneumologie de Qc	12,956	13,824.00
4	3	11044914	Centre hospitalier affilié universitaire de Québec	35,696	14,550.90
4	5	11042264	Centre hospitalier universitaire de Sherbrooke	31,170	15,598.50
4	3	11042371	Centre hospitalier universitaire de Québec	40,498	21,386.20
4	6	12599213	Centre universitaire de santé McGill	46,606	24,712.70
4	6	11042918	Centre hospitalier de l'Université de Montréal	43,222	26,236.40
			Total number	741,076	339,088.60
			Number with weighting > 1,000	709,672	330,465.70
			Proportion	95.80%	97.50%

APPENDIX II: METHODOLOGY USED TO EVALUATE PROGRAM COSTS

The ASP+ budget is determined from the share of the physical health program budget allocated to surgeries.

- Only direct costs associated with surgeries are considered, for example nurses' salaries. Indirect costs, such as activity centres' administrative costs and fixed asset costs, are not covered.
- Costs associated with physician remuneration are not included in the ASP+ budget.
- Special costs, in particular costs associated with specialization, teaching activities and remoteness, are not included in the ASP+ envelope.

❑ Detailed expenditures report used to calculate the program's budget envelope

The detailed expenditures report on the resources allocated to health and social services is largely prepared using institutions' financial report (AS-471)[45] and information on the distribution of volumes per patient type contained in the statistical report (AS-478).

To calculate the budget for surgery for the first year of the ASP+, the detailed expenditures report for the most representative fiscal year is taken as a reference.

- The budget envelope is estimated for the first year of the program and will have to be analyzed periodically, for example at three-yearly intervals, to make any necessary corrections.

The methodology used to calculate the budget envelope is based on identifying costs associated with surgical output across the different programs and patient types in the expenditures report.

- **Breakdown of costs by program**

For a given activity centre, the expenditures report is used to identify the costs attributable to each of the nine existing service programs and two existing support programs.[46]

Since the ASP+ budget covers only direct surgery costs, only costs related to the physical health program, called physical health expenditures, are used when calculating the ASP+ budget envelope.

Within physical health expenditures, in addition to being broken down by activity centre, costs can be broken down by patient type if we make certain assumptions.

[45] This Ministère de la Santé et des Services sociaux database is created using information provided in their annual financial reports (AS-471 form) by public institutions and private institutions under agreement.

[46] The eleven programs are presented in Illustration 13 on the next page.

- **Breakdown of costs by patient type and activity**

The costs associated with the physical health program are broken down by patient type and can be attributable to surgical or medical activities.

We make the assumption that costs associated with surgical output are found in the following four patient types:

— inpatients;

— outpatients;

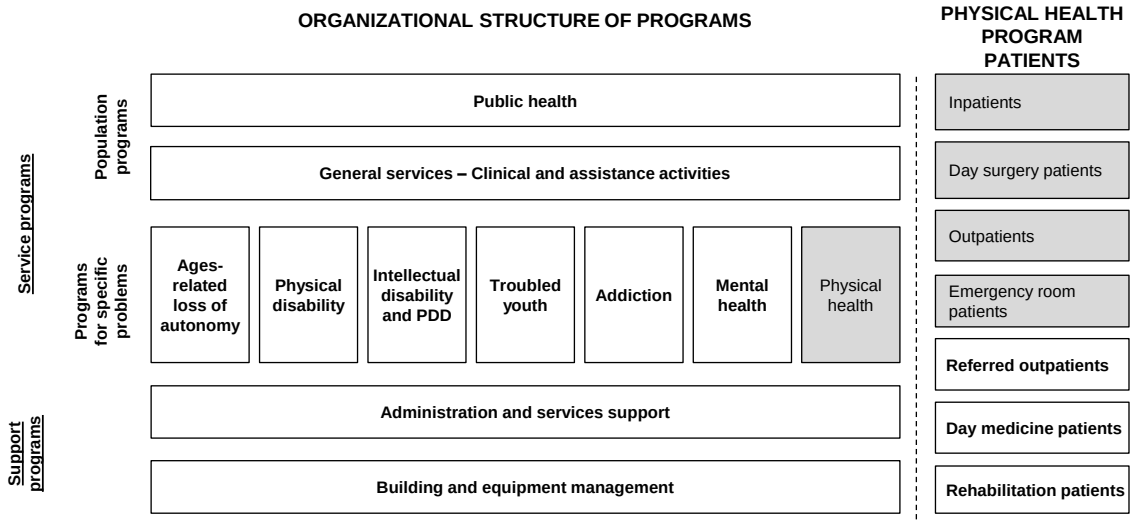
— emergency room patients;

— day surgery patients.[47]

For each patient type, the costs attributable to surgical activities must be isolated. The assumptions and cost-sharing rules used to do so are presented in the remainder of this appendix.

ILLUSTRATION 13

Structure of expenditures by program and patient type



[47] There are three other patient types, but they are not considered given the assumption that the costs of surgical activity are not found in these patient categories initially. For information purposes, the other patient types are: referred outpatients, day medicine patients and rehabilitation patients.

❑ Inpatients

For each activity centre or each group of activity centres, the proportion of costs attributable to inpatient surgery must be determined.

This proportion is calculated using the following formula:

$$\frac{\textit{Total weighting attributable to inpatient surgery}}{\textit{Total weighted inpatient cases}}$$

The total number of weighted inpatient cases in an activity centre is obtained by summing all weighted inpatient cases.

— The weight is given by the NIRRU, which is based on data from Maryland and adjusted to take differences between Marlyand and Québec into account.[48]

The total weighting attributable to inpatient surgery is obtained by breaking down the NIRRU by cost category (e.g., nursing, operating unit, etc.).

— The NIRRU is attributed to each DRG based on the different cost categories using details from the Maryland data.

— Correspondences must then be established between activity centres in Maryland and Québec to identify cost categories that are common to both systems. This distribution of the NIRRU by cost category can then be used for a given DRG.

A correspondence is obtained for 27 centres or groups of activity centres in Québec, namely, 20 activity centres and 7 groups of centres, covering 39 of the 48 activity centres in the physical health expenditures report for inpatients.

- **Calculation of costs**

The proportion of costs attributable to inpatient surgery must be calculated for each of the 20 activity centres and 7 groups of activity centres.

It is then applied to inpatient costs to determine the costs associated with surgery for this patient type.

— For the 20 activity centres for which a proportion specific to the centre is calculated, the proportion is applied to the centre's inpatient costs.

— For the 19 centres in the 7 groups of activity centres for which a proportion has been calculated per group of centres and not by activity centre, the proportion calculated for the group is applied to the centre's inpatient costs.

— For the 9 centres for which no proportion has been calculated, the proportion is determined by comparing the distribution of costs by categories in these centres with the distribution in centres for which a proportion was calculated.

[48] See Section 3.2 for further information on NIRRUs and the concept of weight.

Sample calculation for estimating the proportion of costs attributable to inpatient surgery in an institution

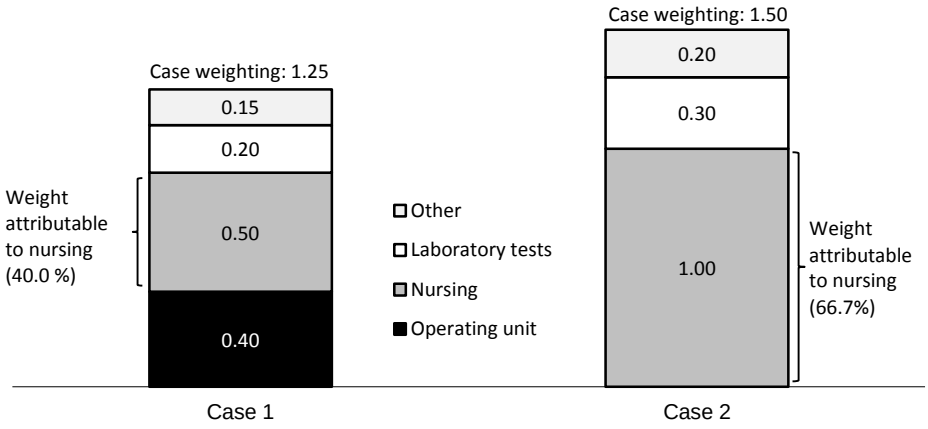
To calculate the proportion of costs attributable to inpatient surgery in an institution, two items of information are required for all admissions, namely:

- the case weight, which reflects the level of resource utilization for this case;
- a distribution of the case weight by cost category.

For example, say an institution has only two inpatient cases. The first case has a weight of 1.25 and the second case, a weight of 1.50. In this institution, the cost associated with each of these cases is distributed between the various cost categories as follows:

- for the first case, the costs associated with nursing represent 40.0% of the cost. The weighting of this case attributable to nursing is therefore 0.50, or 40.0% of the total weighting of 1.25;
- for the second case, the costs associated with nursing represent 66.7% of the cost. The weighting of this case attributable to nursing is therefore 1.00, or 66.7% of the total weighting of 1.50.

Distribution of the weight of two typical cases by cost category



The proportion of nursing costs for inpatients attributable to surgery in this institution can then be calculated.

- The numerator is the sum of the weightings attributable to surgery for these two cases, while the denominator is the sum of the total weightings for these two cases. The proportion is therefore:

$$\frac{0.50}{0.50+1.00} = \frac{0.50}{1.50} = 0.33$$

Thus, 33.3% of nursing costs for inpatients in this institution are attributable to surgery. It is now easy to calculate the costs attributable to inpatient surgery for all centres or groups of activity centres in the same way.

❑ Outpatients

Unlike the calculation of the proportion for inpatients, the proportion of costs attributable to outpatient surgery is not calculated by activity centre but globally for all activity centres that perform surgeries.

This proportion is calculated using the following formula:

$$\frac{\textit{Total weighted surgical outpatient cases covered by the ASP+}}{\textit{Total weighted outpatient cases}}$$

The total number of weighted outpatient cases in an activity centre is obtained by summing all weighted outpatient cases

— The weight used is the weight calculated by the MSSS for the outpatient consultations performance model.

The numerator in this proportion includes, for outpatients, only the weightings of cases covered by the ASP+.

■ Calculation of costs

The proportion calculated is applied to all activity centre costs associated with surgery.

❑ Emergency room patients

As for outpatients, the proportion of costs attributable to surgery is not calculated by activity centre, but globally for all activity centres with this patient type.

This proportion is obtained using the following formula:

$$\frac{\textit{Total weighted emergency room surgical cases covered by the ASP+}}{\textit{Total weighted emergency room cases}}$$

The total number of weighted cases for emergency room patients in an activity centre is obtained by summing all weighted emergency room cases.

— The weight used is the weight calculated by the MSSS for the emergency room performance model.

The numerator in this proportion includes, for emergency room patients, only the weightings of cases covered by the ASP+.

■ Calculation of costs associated with emergency surgery

The proportion calculated is applied to emergency room patient costs in order to obtain the total costs associated with surgery for this patient type.

❑ Day surgery patients

The costs for all day surgery patients are attributable to surgery. Therefore, a proportion does not have to be calculated.

❑ Estimation of the ASP+ budget envelope

The costs associated with surgery covered by the ASP+ are estimated by summing the costs calculated for these four patient types.

Special costs are then subtracted from this envelope to obtain the ASP+ budget envelope.

❑ Calculation of special costs

The following section describes the method for evaluating special costs. For the ASP+, these costs are:

— teaching costs;

— costs associated with distance from subspecialty centres;

— costs associated with institutions' specialization.

■ Teaching costs

The teaching mission of some institutions generates higher health care costs. Indeed, the need to have medical residents participate in treatments may, in some cases, result in a longer decision-making and treatment process or the performance of more diagnostic tests.

In order to calculate teaching costs, a teaching costs variable is defined. This variable uses the weighted number of rotation days to assess teaching in institutions. The weighting is based on two elements, namely:

— the medical specialty to reflect the fact that teaching costs are higher in some specialities;

— the stage of the residency to reflect higher costs in the early stages of a residency than in more advanced stages.

Once the weighted number of rotation days is determined, a relative value is established based on the number of "equivalent cases". This accounting method is used for cases treated by an institution for several patient types.

In short, the teaching variable is calculated as follows:

$$\textit{Teaching variable} = \frac{\textit{Weighted number of rotation days x 10,000}}{\textit{365 x Number of equivalent cases}}$$

Lastly, the unit cost of teaching is determined using an econometric model developed by the MSSS. This unit cost is multiplied by the teaching variable to determine an institution's teaching cost per case:

$$\textit{Teaching cost per case} = \textit{Unit cost of teaching x Teaching variable}$$

The total cost associated with teaching for an institution is the product of the cost for each patient and the number of cases treated:

$$\textit{Total cost of teaching} = \textit{Cost of teaching per case x Number of cases treated}$$

■ Costs associated with distance from subspecialty centres

Institutions that are located at some distance from subspecialty centres face additional expenditures compared with institutions located near such centres, in particular owing to patient transportation.

The costs associated with distance from subspecialty centres are calculated based on distance from the province's metropolitan centres: Montreal, Quebec City and Sherbrooke.

In order to calculate the costs associated with distance, a distance variable is defined. This corresponds to the distance between an institution and the nearest metropolitan centre, from which 150 kilometres is subtracted:

Distance variable = Distance from metropolitan centre – 150 kilometres

The distance premium per kilometre is obtained using an econometric model developed by the MSSS.

This distance premium is multiplied by the value of an institution's distance variable, which corresponds to the distance cost for each case treated in the institution:

Distance cost per case ($) = Distance premium ($/km) x Distance variable (km)

The total distance cost for an institution is the product of the distance cost for each patient and the number of cases treated:

Total distance cost = Distance cost per case x Number of cases treated

■ Costs associated with institutions' specialization

Specialized institutions treat cases that are more complex than average. They have specialized equipment and personnel, which leads to higher case treatment costs.

The costs associated with specialization are assessed based on the proportion of tertiary-level surgery patients, which reflects each institution's level of specialization.

— Tertiary level is defined based on the level of expertise required, human resources and the use of specialized medical equipment to provide health care.

To calculate the costs associated with specialization, a specialization variable is defined. It corresponds to the proportion of tertiary-level surgery patients:

Specialization variable = Proportion of tertiary-level surgery patients

The unit cost of specialization is determined using an econometric model developed by the MSSS. This unit cost is multiplied by the specialization variable to determine the cost per case associated with specialization:

Specialization cost per case = Specialization unit cost x Specialization variable

The total cost associated with specialization for an institution is the product of the cost for each patient and the number of cases treated:

Total specialization cost = Specialization cost per case x Number of cases treated

APPENDIX III: INTEGRATED MANAGEMENT TOOL

The objective of this initiative is to provide clinical references for the different stakeholders in the health care system and to link these references with other factors that influence service management. To obtain credible trends, an integrated management tool requires sufficient volumes, as for hip, knee and cataract surgery.

The approach developed involves two actions:

— the expected production volume per institution must be estimated based on population factors;

— the results must be examined in relation to wait times and a measure of physician availability.

❑ Estimation of the expected volume

The expected volume is estimated in two stages:

— estimation of expected consumption by CLSC (local community services centre) territory;

— calculation of the expected production per institution based on the expected consumption by CLSC territory and the patient pathway.

■ Estimation of expected consumption by CLSC territory

Expected consumption is estimated by a statistical relationship (linear regression) between the weighted surgery rate[49] by CLSC territory, age group and sex and dichotomous variables to identify age groups and sex:

$$Surgery\ rate = \sum_{i=1}^{n} (a_i \times Age\ group_i + \beta \times sex)$$

where:

— n is the number of different age groups;

— α_i and β are the estimated parameters;

— age groups and sex are dichotomous variables.

The population data comes from the Institut de la statistique du Québec and Statistics Canada.

■ Calculation of expected production by institution

Information on patient mobility is used to estimate the distribution of expected consumption by institution for a CLSC territory.

— An institution's total expected surgical production is the sum of the expected production levels by CLSC territory for this institution.

The patient pathway is taken from the MED-ÉCHO database.

[49] The weighting is calculated using NIRRUs.

❑ Examination of results

This involves comparing disparities between actual production and expected production for a given year and evaluating the factors behind these disparities, namely:

— the physician access index is different from the provincial average;

— the number of surgeries per physician is different from the provincial average.

The information on the number of surgeries comes from the MED-ÉCHO database. Surgery wait times and the number of surgeries per physician are taken from the SIMASS database, while the physician access indices come from the CONSOM database.[50]

[50] CONSOM: Standardized Supply and Consumption of Physician Services.

APPENDIX IV: METHODOLOGY USED TO DETERMINE TARIFFS

The following section describes the steps involved in setting tariffs for the ASP+. A guide to ASP+ tariffs will be developed by the MSSS when the program is implemented.

❑ Step 1: each surgery is assigned to a group of surgeries

In the ASP+, the RAMQ's database will be used to identify the surgeries performed. Thus, the 2,217 or so RAMQ procedure codes for surgery will have to be distributed among the 150 groups of surgeries in the ASP+.

To do so, a table of correspondence with groups of surgeries will be created for RAMQ and MED-ÉCHO data. This table will be used to link RAMQ and MED-ÉCHO data.

❑ Step 2: weights are attributed

A weight, or NIRRU, will be attributed to each group of surgeries. The NIRRU reflects the costs of providing care. Remember that NIRRUs are calculated using cost data from Maryland that is adjusted to reflect differences in health care delivery between Maryland and Quebec.

Patient status will be considered in the tariffs. The tariff for groups in which at least 90% of surgeries are performed in day surgery will be based on day surgery costs.

— Similarly, the tariff for groups in which 90% of surgeries are inpatient surgeries will be based on inpatient surgery costs.

For groups in which the proportions of surgeries performed in day surgery and on an inpatient basis are similar, a mixed tariff will be determined based on the proportion of surgeries performed in one or other of these types of surgery.

❑ Step 3: provincial tariffs are calculated for the groups of surgeries

The tariff for a group of surgeries is obtained by multiplying the NIRRU associated with this group by the base cost.

The base cost is the cost of an average admission at the provincial level. In other words, it is the tariff for an admission with a NIRRU of exactly 1.

— The base cost reflects ministerial orientations, such as the decision to cover only the ASP+'s operating costs. This cost will be reviewed annually.

❑ Step 4: the tariff is adjusted based on the relative average severity level

For institutions, the tariff for each group of surgeries will reflect the relative average severity level (NRGM) of the cases treated. The NRGM will apply only to inpatient surgeries.

The NRGM is calculated based on the average severity level (NGM) of the cases treated by an institution. For each case, there are four possible severity levels. The NGM corresponds to the average of the severity levels of all the cases treated by an institution in one year.

Once an institution's NGM has been calculated, its NRGM can be determined. The NRGM corresponds to the standardization of an institution's NGM relative to the mean NGM of the entire province.

The tariff an institution receives for each surgery performed corresponds to the provincial tariff for the associated group of surgeries multiplied by the institution's NRGM.

❑ Other tariff adjustments

Tariffs are determined based on NIRRUs. However, special situations may require tariffs to be adjusted to reflect treatment costs more accurately, for instance, for neonatology or multiple trauma.

❑ Adjusting tariffs to expected increases in volumes and the budget envelope

The ASP+ will be funded in the context of a closed envelope. The tariff, set at the beginning of the year, will reflect expected volumes and the budget envelope allocated to cover all surgery volumes.

Example of how a tariff for hip replacement surgery is calculated

Step one: the surgery is assigned to a group of surgeries

Procedure code 2259 is the code for hip surgery in the RAMQ's database. Its equivalent in the MED-ÉCHO database is 301. The ASP+ group of surgeries is also 301.

Step two: a weight is attributed

In this example, the NIRRU associated with the 301 group of surgeries is 2.158.

Step three: the provincial tariff for the group of surgeries is calculated

Take, for example, a base cost of $3,127 in 2014-2015, i.e., the cost associated with a NIRRU is one. By multiplying the base cost by the NIRRU associated with the group of surgeries that includes hip replacement surgery (2.158), we obtain the provincial tariff for this group of surgeries.

Thus the provincial tariff is $6,748.

Step four: the tariff is adjusted based on the relative average severity level

Take, for example, an institution with an NGM of 2.1 for hip replacements. Imagine that the NGM for these surgeries is 2.0 at the provincial level.

The institution's NRGM is the ratio between its own NGM (2.1) and the provincial NGM (2.0). In this example, the institution's NRGM is therefore 1.05.

Lastly, to obtain the tariff the institution is entitled to receive for a hip replacement, the provincial tariff for the group of surgeries ($6,748) must be multiplied by the institution's NRGM for this group of surgeries (1.05).

Thus the tariff for a hip replacement in this institution is $7,085.

Lastly, a mechanism must be introduced in tariffs so that they are adjusted based on whether or not certain targets for quality and access indicators are achieved. This mechanism is described in detail in Section 4.3 of the paper.

APPENDIX V: PERFORMANCE INDICATORS

❑ Quality

■ Discharge status

Various types of referral are possible when discharged from an institution (to home care, long-term care, etc.). This indicator reflects the quality of care provided and the efficiency of intra- and interinstitutional service organization.

■ Readmission rate

This indicator measures the rate of unplanned readmissions within 30 days of discharge after an adult surgical episode of care.

— There is no target for this indicator at present. The readmission rate should be zero or close to zero.

■ Hospital mortality rate

This indicator measures the number of deaths in an institution, all causes combined, within ten days after major surgery.

■ Postoperative infection rate

This indicator measures the portion of surgical procedures performed in the operating unit that resulted in an infection directly related to the surgical procedure.

❑ Accessibility

■ Average wait time

This indicator is generally a reflection of the institution's efficiency with respect to service organization and surgical priorities.

■ Proportion of cases with excessive wait times

This indicator reflects the number of patients on a surgery wait list who wait longer than the recommended wait time.

The concept of "surgery wait lists" is defined by the mechanism of access to specialty and subspecialty services[51] and is calculated by the electronic tool SIMASS (Information System on Mechanisms of Access to Specialty and Subspecialty Services).

The target wait times are:

— six months for orthopedic surgery;

— 28 days for cancer surgery;

— one year for other types of surgery.

[51] Bill 33 sanctioned in December 2006: *Act to amend the Act respecting health services and social services and other legislative provisions*.

APPENDIX VI: GLOSSARY

AHSSS (*Act respecting health services and social services*): This Act establishes a method for the organization of human, material and financial resources to achieve certain objectives centred on the population's health and social services needs.

APR-DRG (All-Patient Refined Diagnosis-Related Group): International classification system in which each patient is attributed a diagnosis-related group and a clinical severity level.

AS-471: Institutions' financial report.

ASSS (Agence de la santé et des services sociaux): Health and Social Services Agency.

Clinical severity: Four levels of clinical severity that are assigned based on a number of criteria: age, secondary diagnoses and disease interactions.

Established clinical standard: Clinical procedure established by clinicians describing the proper practice for a clearly defined activity.

CONSOM (Consommation et offre normalisée des services offerts par les médecins): Standardized Supply and Consumption of Services Provided by Physicians.

CSSS (Centre de santé et de services sociaux): Health and Social Services Centre.

I-CLSC (Système d'information sur la clientèle et les services des CLSC): Information System on Local Community Health Centre Services and Patients.

MED-ÉCHO (Maintenance et exploitation des données pour l'étude de la clientèle hospitalière): Maintenance and Development of Data for the Study of Hospital Patients.

Minimum production threshold: The minimum volume of surgical output that an institution must have performed in a previous fiscal year to be eligible to participate in the ASP+.

MSSS (Ministère de la Santé et des Services sociaux): Department of Health and Social Services.

NGM (niveau de gravité moyenne): Reflects the average severity level of cases treated in an institution by DRG for a given year.

NIRRU (niveau d'intensité relative des ressources utilisées): Reflects the relative intensity level of resource utilization or "weight" of the case treated.

NRGM (niveau relatif de gravité moyenne): Reflects the relative average severity level of cases treated by DRG for each institution for a given year.

RAMQ (Régie de l'assurance maladie de Québec): Québec Health Insurance Board.

SIMASS (Système d'information sur les mécanismes d'accès aux services spécialisés et surspécialisés): Information System on Mechanisms of Access to Specialty and Subspecialty Services.

SIPAD (Système d'information pour les personnes ayant une déficience): Information System for People with Disabilities.

Special costs: Costs associated with teaching and research, distance from subspecialty centres and an institution's specialization.

Weighted case: Case multiplied by its weight (NIRRU).

Québec