HAUTE AUTORITÉ DE SANTÉ

POSITION STATEMENT

Day surgery tariffs in France and in other countries

Current situation and future prospects

June 2013

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The scientific discussion for this assessment can be downloaded from
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Haute Autorité de Santé (French National Authority for Health)
Documentation Department - Public Information
2, avenue du Stade de France – F 93218 Saint-Denis La Plaine Cedex
Tel.: +33 (0)1 55 93 70 00 – Fax: +33 (0)1 55 93 74 00

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Introduction

Described for the first time in Scotland in 1909 (1), day surgery has increased considerably since then in the United States. In the 1960s, two official programmes were set up in the California and Washington Hospital Centres (2). This alternative to full hospitalisation then rapidly increased with the opening of several centres throughout the country. Day surgery has also increased in Canada and in several European countries, including Great Britain, the European pioneer, from the 1970s, increasing rapidly from 1980 (2).

Although day surgery increased considerably between 2007 and 2011 (from 32.7% to 39.5%) according to the Agence technique de l'information sur l'hospitalisation (ATIH [French Technical Agency for hospitalisation information])[1] (4-6), France is considered to be one of the countries which has least developed day surgery. It suggests that France has been somewhat behind in this process. (3). The practice, however, combines quality, safety, waiting time reductions and optimisation of the organisation of care and also reduces nosocomial infection rates and improves patient satisfaction. (3).

International comparisons on day surgery rates, however, are difficult to carry out because of the differences in terminology used and the very wide range of models of health system organisation. The *International Association for Ambulatory Surgery* (IAAS) in 2003, however, unified the definition of day surgery and the terminology used (7).

International terminology

The international terminology of "*day surgery*" was adopted and the synonyms "*ambulatory surgery*", "*same-day surgery*" and "*day-only*" were approved.

The concept of "*day*" is understood as a "*working day*" in terms of length of work (during working day) with "*no overnight stay*" (7, 8).

Day surgery is therefore different from surgery described as:

- "*extended recovery*", also called "*23 h*", "*overnight stay*", "*single night*", i.e. 23 hours or overnight stay;
- "*short stay*", i.e. surgery with a hospitalisation lasting 24 to 72 hours.

Definition

The international definition of day surgery was adopted by the IAAS executive committee in 2003 (7), and was then confirmed in the *Policy Brief* published by the WHO, the *Pan American Health Organization* and the European Observatory on Health Systems and Policies in 2007 (9):

"A day surgery patient is admitted for a procedure which is planned and does not require a hospital stay but does however require recovery facilities. The whole procedure should not require an overnight stay. "

Beyond the strict definition, day surgery is an organisational concept: "The organisation is at the centre of the concept and the patient is at the centre of the organisation" (7, 10).[2]

In France, the definition of day surgery was produced from the March 1993 consensus conference:

"Day surgery is defined as surgical procedures […] which are planned and carried out under technical conditions which have the mandatory requirements of **safety of the operating theatre**,

[1] For a detailed description of this increase, refer to the knowledge pack report published by HAS and ANAP (3).

[2] day surgery activity must not therefore be confused with situations in which the day surgery unit is not distinguished from the rest of the hospitalisation surgical sector. According to SFAR, "in conventional hospital day surgery, the admitting and secretariat centres, hospitalisation units and operating theatres are common to both day surgery and conventional surgery activities. This type of care is contrary to the requirements of the concept of day surgery. The patient is no longer at the centre of the organisation causing dysfunction (cancellations and delays) and it reduces the quality and safety of this service" (11).

under **different methods of anaesthesia** and followed by **post-operative monitoring**, enabling patients to be **discharged on the same day as their procedure at no increased risk"** (12).

Day surgery is therefore in principle planned surgery.[3] It does not therefore involve urgent surgical procedures. It involves a hospitalisation (in which the admission date is the same as the discharge date). It is therefore different from procedures carried out on an "ambulatory" basis, i.e. without hospitalisation. The procedure is performed in an operating theatre, under anaesthesia.

Regulations

Decree No. 92-1101 and No. 92-1102 of 2 October 1992 laid down the regulatory bases for centres carrying out anaesthesia or day surgery, describing them as alternative care centres to hospitalisation.[4] This 1992 decree, partly rescinded by the 6 May 2005 decree on health organisation and equipment, was enshrined in the Code de la santé publique (CSP [French Code of Public Health]).

Day surgery is an alternative to hospitalisation for permitted surgical care activities. It is an approved substitutive activity. Day surgery defined in article R.612-4 of the Code de la santé publique (CSP [French Code of Public Health]) has to meet technical operating conditions defined in articles D. 6124-301 to 305 of the CSP, relating to alternative care structures to hospitalisation. These terms apply to "**facilities approved as alternatives to full hospitalisation,** as stipulated in article L. 6122-1" (article D. 6124 301 of the CSP). The healthcare facilities are therefore approved to carry out surgical care activities as day surgery.

Article D. 6124-301-1 of the CSP states that "Part of day or night hospitalisation centres and centres carrying out anaesthesia or day surgery dispense care as stipulated in article R. 6121-4, **lasting twelve hours or less, not involving an overnight stay**, for patients whose health is consistent with these types of management".[5]

"The services delivered **are equivalent in their type, complexity and medical monitoring which they require to those services usually delivered in a full hospitalisation**."

The instruction for ARS (regional health agency) general directors of 27 December 2010 (DGOS/R3 instruction No. 2010-457), restates this description as "approved substitutive" surgery with full hospital admission in its doctrinal sections (cf. annexe 5), and states:

"This is a paradigm shift:

- no longer considering targeted procedures which can potentially be carried out as day surgery and included in closed lists which are often contentious and behind the times in terms of professional practice;
- but extending this type of care to all patients eligible for day surgery and all surgical activities, day surgery becoming the reference procedure."

"These centres must be **easily identifiable by their users and be specifically organised**. They are organised into one or more individualised care units and have dedicated resources in terms of premises and materials. They also have a medical and paramedical team whose functions and

[3] The regulatory definition of a day surgery unit (DSU) does not however exclude emergencies.

[4] Decree No. 92-1101 of 2 October 1992, about alternative care centres to hospitalisation, precisely defined these centres and introduced the simple concepts of organisation and architecture. The specific resources which these centres require in terms of premises, materials and staff were also introduced.

[5] The option is now offered to the day surgery centres to extend their opening times although the patient's length of stay remains limited to a maximum of 12 hours. The article which stated that the centres provided services over a working day lasting 12 hours or less has been amended by decree No. 2012-969 of 20 August 2012 which has modified some of the technical operating conditions for the alternative centres to hospitalisation and now states that the care must not last for more than this period of time.

tasks are defined by the operating charter stipulated in article D. 6124 305 and all of their members are trained in part of day care, day anaesthesia or day surgery."

This definition means that in France:

- day surgery requires hospitalisation, as the patient is admitted, stays in the hospital and passes through the operating theatre;
- the patient's length of stay is limited to a maximum of 12 hours;
- the day surgery services are equivalent to those usually provided in a full hospital admission;
- day surgery has specific organisation, premises, equipment and dedicated staff;[6]
- the number of procedures is increasing progressively and is not set.

The observed delay in the increase in day surgery in France

Different countries often consider the day surgery rate in the United States to be the target to be achieved. Several statistics are available for this country.

- From the 2006 National Survey of Ambulatory Surgery[7] (13), which presents information from the American national databases (*National Health Care Surveys*) designed to be representative of facilities' activities,[8] 53.3 million surgical and non-surgical procedures were recorded in 2006 for 34.7 million attendances. This represented **61.6% of all hospital stays in surgical departments** with or without surgical procedures. This survey includes surgical and non-surgical procedures carried out in a hospital or independent centre and other specialist structures such as endoscopy units or cardiac catheterisation units. The data did not include surgical procedures carried out "in office" which is common in the United States (cf. part 2.5.1);
- In 2010, the American Hospital Association reported a day surgery rate of 63.5% of all surgical procedures carried out in community hospitals only[9](14);
- for the 37 procedures selected by IAAS (cf. list in appendix 1), the American day surgery rate was higher, 83.5% in 2004 (15).

[6] The decree states that for day anaesthesia and day surgery the members of the team are dedicated to the day surgery unit, with the exception of staff working mostly in the operating theatre.

[7] The *National Survey of Ambulatory Surgery* is the only national survey which reports day surgery carried out both in hospitals and independent centres (*Ambulatory Surgery Centers*). The survey was conducted in 1994 and 1996 and then ceased until 2006. The data are collected by the *Centers for Disease Control* (CDC) and *Prevention's National Center for Health Statistics* (NCHS).

[8] The information is obtained from American national databases (*National Health Care Surveys*) which are designed to be representative of the facilities' activities). One hundred and forty-two hospitals and 295 ASCs responded, i.e. a response rate of 75% of the facilities involved in this surgery. The data collected excluded a large proportion of gynaecological and dental activities. The denominator is the number of discharges with or without a surgical procedure.

[9] These were all non-federal short stay hospitals, both general and specialised.

1. Context and instruction

1.1 Objective and challenges

As France was found to be behind in the overall number of procedures performed as day surgery compared to international findings, the DGOS (i.e. Hospitals regulation department of the Ministry of Health) instructed HAS to produce reference information to guide the work needing to be carried out in healthcare facilities and with health professionals to increase the proportion of surgical activities, all procedures combined, carried out on a day surgery basis. At the same time in December 2009, ANAP included day surgery in its work programme for 2010.

In addition, development of day surgery was one of the ten proprietary risk management programmes for the regional health agencies for the years 2010 to 2012.[10]

1.2 Origin and history

The initial instruction presented by the DGOS for the HAS 2010 work programme was the "appropriateness of procedures and stays". The Ministry of Health office proposed that this be divided into an overall subject "day surgery" and an "appropriateness of procedures" subject which the DGOS interpreted as an analysis of medically "unjustified" procedures.

At the same time, three meetings co-organised by HAS and ANAP, in partnership with AFCA (French Professional Association for Day Surgery) (December 2009, October and November 2010), were designed to make the different institutional partners aware of the need to increase day surgery.

The expression of needs was reworded jointly by HAS and ANAP at the end of 2010, for the 2011 work programme, and proposed a partnership between the two institutions with the aim of delivering a number of instruments and organisational and professional good practice guidelines under a joint banner.

The HAS-ANAP work was intended to support three key groups of workers: health professionals, health care facility managers and regulators (ARS). Specific activities and/or information for patients and users are also planned.

1.2.1 The ANAP-HAS partnership

The ANAP-HAS ambulatory surgery partnership is a priority horizontal approach in the work programme for the two institutions and is part of the continued and strengthened collaboration between ANAP and HAS established since 2009. The core work of each institution is complementary and includes, for HAS, production of in-depth analyses and reviews of published data in order to identify evidence, reference professional guidelines, indicators, certification references, and for ANAP, on-site process analysis, supporting health facilities and producing tools and recommendations. The aim is therefore to potentiate and add value to the joint or partnership productions.

In order to coordinate and provide a structure to produce tools suitable for professionals', health facilities' and ARSs' needs, the two institutions defined a joint action programme and joint governance of the work consisting of:

- a steering committee (COPIL) made up of representatives of the Collège de la HAS (HAS Board) and the Conseil scientifique et d'orientation de l'ANAP (ANAP scientific orientation council) and representatives of the directorates to ensure its strategic direction;

[10] DGOS/R3 instruction No. 2010-457 for ARS director generals of 27 December 2010.

- an operational committee (COMOP), made up of the "job directors" and representatives of the services in order to oversee the running and coherence of the strategic directions and production of deliverables.

1.2.2 Joint action programme

Six areas of work producing sequential, complementary end products were defined over a multi-year plan (2012-2015). A joint direction statement describing these areas was published. These are shown below:

- Area 1: Overview

The current state of medical, regulatory and economic knowledge obtained from published French and international data on day surgery was described in a detailed report entitled "Day surgery : an overview". This was published jointly by HAS and ANAP on 20 April 2012 (3). This document was the first deliverable of a multi-year programme involving these two institutions and contained six areas consistent with a directions statement published in December 2011.[11]

The aims of this data summary were firstly to provide the different parties involved, particularly health professionals, with an educational tool, and secondly to act as a basis for information on which all of the ANAP-HAS work would be founded.

- Area 2: Selection/eligibility criteria for day surgery patients

Patient selection is based on medical and psychosocial factors. This is an essential stage in the decision to use this type of care. The aim of this work is to reconsider the criteria which were already updated in 2009 by the Société française d'anesthésie et de réanimation (SFAR [French Society for Anaesthesia and Intensive Care]), in light of current practice and risk management.

This approach which is separate from the procedure itself, distinguishes the need for care from the need for accommodation ("hotel services").

- Area 3: Organisational dimension: operational models and tools

Day surgery is an organisational concept centred on the patient and relies on a process coordinating primary care and hospital workers, management of patient flow and harmonising practices.

The organisational dimension will be examined in several studies using several different approaches.

  - analytical:
    - organisational risk assessment based on proven methods from a sample of five health care facilities.
    - *benchmarking* targeted on 15 pioneering day surgery facilities;
  - support:
    - operational support for 20 health care facilities willing to increase their day surgery rates.
    - targeted support on three or four pilot ARS with low day surgery rates;
  - deliverables:
    - designed to provide end products (tools, guides, recommendations, etc.) to produce generic models of organisational plans, clinical pathways and appropriate "*check lists*".

- Area 4: Economic assessment tools and recommendations

[11] All of the documents published in this programme can be accessed at the following addresses: http://www.has-sante.fr/portail/jcms/c_1241930/ensemble-pour-le-developpement-de-la-chirurgie-ambulatoire.

The different studies are intended to be carried out sequentially. All of the parties involved have expressed a need for tools to identify the conditions for a financial break-even for day surgery using a prospective income/production costs approach.

The two partner institutions have adopted three complementary approaches:

- **ANAP has decided to develop a software tool produced from data directly available from hospital analytical accounting.** The aim of this tool is to study the conditions for the charges-products break-even point when the hospital decides to substitute day surgery in place of surgery with conventional hospitalisation. A first prototype software tool was produced in April 2012 from an initial sample of five health care facilities, involving collection and analysis of the information required to construct a reproducible model. The tool constructed will then need to be tested for reliability on a larger sample of 20 health care facilities as part of another project started by ANAP entitled "Supporting twenty health care facilities". The tool will then be deployed to the ARS and/or volunteer facilities;

- HAS needs to carry out a microcosting study to assess the actual cost of day surgery from observations of the patient's clinical pathway in a few day surgery units (DSU) for a few predetermined procedures. This study will be used to calculate the cost per stay and variations in cost depending on production volumes and then to compare it to the funding received primarily through activity-based tariffs (T2A). The method used will need to be reproducible and will lead to the production of a second software tool which can be deployed in the volunteer facilities which wish to carry out their own microcosting study;

- **an analysis by the HAS of the international published literature on tariff models which exist in other countries also needs to be carried out and is the purpose of this report. The ultimate aim is to propose recommendations for changes in tariffs in France for the DGOS.**

- Area 5: Indicators, monitoring and assessment

The work already carried out by HAS and indicators already developed by ANAP will be used to develop a common limited group of indicators for each of the "target clients".

- Area 6: Certification/accreditation

A change is planned to the certification standards over the next four to five years with a view to the "certification of teams" and commitments to excellence by these teams (development of programmes to identify trained teams). The update to the certification guide will help therefore to coherently support all of the upstream activities carried out.

These six areas are intended to be incorporated into a coherent global approach to answer all of the questions about day surgery raised in the knowledge overview (cf. area 1). The work carried out to revise the selection and eligibility criteria for day surgery patients (cf. area 2) and the results of exploratory studies on the organisational scope (cf. area 3) will help to construct clinical pathways and introduce monitoring and assessment indicators (cf. area 5). The economic recommendations (cf. area 4) will apply to a group of solid indicators to identify the extent of deployment of measures to promote take up and to assess their results. Finally, the different perspectives (facility, regional ARS and national regulator) will need to be analysed jointly in order to ensure overall coherence of the recommendations, which can be incorporated into the certification reference standards (cf. area 6).

1.3 Purpose of this report and methods

This document falls within area 4 "Economic assessment tools and recommendations" of the joint ANAP-HAS programme carried out by HAS. It contains an analysis of the international literature published on existing tariff models in other countries. It is a position statement intended:

- to describe the theoretical and practical consequences of the main tariffs currently used for day surgery;
- then to examine the new tariff methods introduced in other countries to identify areas for improvement and make proposals which apply within the context of France and which are liable to accelerate the development of day surgery.

1.3.1 Method

► Scope of the subject

A scoping paper on the subject was written for the whole of area 4 "Economic assessment tools and recommendations" by a project manager from the Service évaluation économique et santé publique de la HAS (HAS Economic and Public Health Assessment Department) in order to assess the utility of the question and identify what was available in the literature, define the scope of the study and the intended timeframe and to propose approaches to respond to its objectives.[12] It also listed the colleges and professional societies, associations and institutional partners to be approached, together with the professionals involved in order to set up a methodological support group.

The scoping paper was presented and approved by the Commission évaluation économique et de santé publique (CEESP [HAS Economic and public health assessment committee]) on 14 February 2012, and then by the Collège de la HAS (HAS Board) on 28 March 2012 which in particular adopted the principle of producing a position statement examining the international tariff methods.

► Scientific justification

The first version of the scientific justification was based on a systematic literature review published on the proposed subject carried out by a HAS project leader and consulting the national health insurance websites of the countries identified as having set up specific tariff methods.

The scientific justification also describes the working methods used: an in-depth literature search by systematic interrogation of medical, economic and scientific literature databases.

It contains the components of the response to the question raised and identifies the main needs and areas for additional work which will need to be considered in order to improve the methods for promoting tariff setting in France. The intermediary version of the scientific justification evolved between each of the meetings of a methodological support group on the basis of suggestions proposed and amendments requested by experts.

► Methodological support group

In order to carry out this work, HAS received assistance from experts brought together in a multidisciplinary methodological support group (MSG). This group is the scientific guarantor of the justification and of its coherence with practice.

The methodological support group was set up based on:

- proposals of names of experts from the professional colleges and societies, associations and institutions involved in the subject of the work and approached by HAS;
- a public call for applications published on the HAS website (in May and June 2012).

The methodological support group experts approached completed a declaration of interests which was examined by the HAS economic and public health assessment committee board against a grid of assessments of declarations of interest appearing in the "Guide to declarations of interests and

[12] It is available on the HAS website at the following address: http://www.has-sante.fr/portail/jcms/c_1242336/chirurgie-ambulatoire-axe-relatif-aux-outils-et-recommandations-economiques-note-de-cadrage

prevention of conflicts of interest" when the assessment was started, in 2012. The membership of the methodological support group was approved by the CEESP board. The experts undertook to respect the confidential nature of their work until it was officially published by HAS.

The group contains 12 members, two health economists, three health facility managers, three DIM (department of medical information) doctors, a user association representative, two ATIH members and a member of ANAP.

Throughout the justification writing process carried out by the HAS project leader the methodological support group experts were invited to offer their opinion on its quality and relevance. They provided further information to describe the French and/or international context of the question being assessed (current state of practice, ongoing scientific work, useful contacts, etc.). They were consulted in two working meetings and were asked about specific questions by e-mail.

The methodological support group meetings took place on:

- 12 October 2012;
- 25 January 2013.

The methodological support group agreed with the data presented in the justification.

The HAS conclusions derived from the different parts of the scientific justification, the group discussions and a HAS assessment of these parts. They were written by the HAS project manager.

► Reading group

Once approved by the methodological support group, three surgery and anaesthesia-intensive care learned societies were consulted. These provided comments on the draft version of the report between February and March 2013:

- The Association française de chirugie ambulatoire (AFCA [French Day Surgery Association]);
- the Académie nationale de chirurgie (French National Academy of Surgery);
- the Société française d'anesthésie et de réanimation (SFAR [French Society of Anaesthesia and Intensive Care]).

► Final version of the justification and recommendations

The final version of the justification and recommendations together with the process by which they were produced were discussed by CEESP on 16 April and 14 May 2013. The Committee gave its approval (approval date 14 May 2013) for the justification and recommendations to be submitted to HAS-ANAP COPIL and then to the HAS Board.

Following the proposal from CEESP, the HAS Board approved the final report and the summary and recommendations and agreed to its distribution on 19 June 2013.

1.3.2 Scope of the analysis

The scope of the analysis was identified in a discussion with members of the MSG in its first meeting on 12 October 2012. This was based on:

- tariffs for the hospital stay. This did not involve assessing all of the tariffs in the patient "care pathway", (i.e. before and after the hospitalisation) which takes place partly in primary care;

- it is limited to an analysis of the tariff rules. It is not an assessment of actual costs of day surgery, which is planned to be examined as another of the day surgery programme

deliverables (i.e. full costs studies carried out by ANAP and microcosting study carried out by HAS). On the other hand, published information which refers to the cost-tariff difference as a restricting (or promoting) factor for increasing day surgery has been included in the analysis.

- it targets the scope of tariffs for day surgery activities and the possible overhaulings or changes made to them, remaining within the theoretical framework of the same type of funding (activity-based). The report may however make proposals which could substantially change the tariff model for day surgery if this appears relevant in light of the published international information examined and the limitations found in the way in which tariffs are established in France.

Overall, the purpose of this report is to compare the methods for tariff incentives for day surgery between the different countries. This involves a description of what the countries have done in terms of day surgery tariff-setting, to examine the theoretical promoting factors for these and when the literature data permits, to examine the impact of these tariff rules on the development of DS. This analysis should then enable proposals to be made to improve the system of tariff incentives used in France for day surgery.

► Areas excluded from the analysis

Several features will not be examined in this report, in particular:

- Comparison of tariffs between countries.

This study does not intend to compare the lists of tariffs by DRG (and its equivalents) between countries. This procedure which is extremely difficult to perform in practice is also not relevant for several reasons:[13]

  - the range of procedures performed differs between countries;
  - the components making up costs, including tariffs, differ greatly between countries;
  - activity-based funding makes up different proportions of funding between countries (cf. table 1);
  - there are differences in salaries and purchasing power between countries, making direct comparisons in monetary units (Euros or dollars) inappropriate.

- Patient contributions

A surgical procedure in France is reimbursed by National Health Insurance on the same bases as those which apply to hospital costs; patients pay

- a single contribution of €18 [14] if a therapeutic or diagnostic procedure is performed during a hospitalisation which has a tariff of 120 € or greater, or a coefficient of 60 or greater;[15]
- the daily payment of €18 per day;
- supplements for single rooms and various invoiced services (telephone, television, etc.). In this situation and all things otherwise being equal, the patient contribution is theoretically lower in day surgery as the stay is shorter;
- additional fees, which may theoretically be received in both situations (CH and DS), although most relate to the technical procedure (surgery), which is the same regardless of the type of hospitalisation;

[13] For a detailed analysis of this question applied to surgical procedures which could potentially be carried out on a day surgery basis, the reader may refer to two articles published in 2012 on cholecystectomy (18) and inguinal hernia operations (19).

[14] If several procedures with a tariff of 120 Euros or more or which have a coefficient of 60 or more are carried out by the same practitioner in the same consultation, the single 18 Euros contribution only applies once.

[15] Source : http://www.ameli.fr/assures/soins-et-remboursements/ce-qui-est-a-votre-charge/le-forfait-18-euros/les-actes-concernes.php.

- when some of the medical procedures required before or after the procedure carried out in day surgery are performed in primary care medicine, the patient contribution may be higher than if the procedures were carried out as part of the hospitalisation (for example, the post operative consultation if this was carried out by the surgeon who performed the procedure should not be invoiced, repeat laboratory investigations, etc.).

There may therefore be differences in the patient contribution (either positive or negative) depending on the patient's type of hospitalisation.

Regardless, the detailed analysis of patient contributions is not part of this study:

- for feasibility reasons (the need for complex processing of a large number of procedures from the national cross-system health insurance funds databases);
- because of missing information about the payment contributions in day surgery available in the international literature and the difficulty making comparisons because of the different types of health insurance systems;
- because the methodological support group members felt that the financial contribution from patients was not currently a restriction to a patient choosing day surgery and was not therefore liable to restrict its development.

2. Arguments

2.1 Introduction

Following work carried out by Prof. Robert Fetter and his team at Yale University, a new payment system for health care facilities was introduced in the United States in 1983 by *Medicare*[16] in the form of a disease-based tariff. Classification into a group of diseases called DRG[17] (*Diagnosis Related Group*) depends on the patient's main diagnosis.

This classification system for stays and payment based on a prospective tariff[18] gradually extended to many western European countries during the 1990s (Germany, Austria, Belgium, France, Spain, Finland, Ireland, Italy, Norway, Portugal and Sweden).

The different countries initially opted for mixed funding combining an overall budget or daily payment and the disease-based tariffs (20, 21)[19]. DRG tariffs then became the main funding method for hospitals in most western countries,[20] including France, which since 2008 has generalised the tariff-setting to the activities of all hospitals.

This near generalisation over a relatively short time is explained by the expectations from this new funding model which:

- should bring more transparency, linking the care activities actually performed to their estimated cost (20);
- has the advantage of being more equitable in distributing resources between facilities than an overall budget;
- should also help to better manage and control health expenditure as the facilities would be directly incentivised to bring their costs closer to the tariffs received;
- should help some countries (such as the United Kingdom or Norway) to reduce waiting lists by incentives to increase activity volumes through this method of tariffs.

The international tariffs for day surgery are set as in France fully incorporated into the DRG tariff model. This report describes the main principles and application methods in France and their limitations highlighted in the literature (part 2.2). It then describes the aspects relating to day surgery (part 2.3), and examines their impact on its increase (part 2.4).

A specific chapter is then dedicated to independent day surgery centres and their tariff-setting (part 2.5), as this organisational model has been believed to be a means of increasing day surgery in the United States and in Great Britain.

Part 2.6 of the justification is dedicated to new tariff methods put in place or being experimented with and which apply to surgery (the principle of best practice payment and bundled payment).

Finally, part 2.7 examines the tariff methods adopted and the efficiency gains which may be expected from them. It then provides a description of changes in tariffs which could be introduced to improve their yield and increase efficiency.

[16] Federal American insurance for people over 65 years old and handicapped people.

[17] The French equivalent is the “groupes homogènes de maladies” (GHM) or “groupes homogènes de séjours” (GHS) (diagnosis-related stays)

[18] The tariff amounts are calculated for the coming year based on an estimate of activity in previous years.

[19] Cf. chapter 2, Geissler *et al*., *Introduction to DRGs in Europe: Common objectives across different hospital systems* (21).

[20] The ratio of tariffs and complementary funding mechanisms is around 80/20% in France, Germany, The Netherlands, Ireland and Portugal. It is believed to be in the region of 60/40% in England and Poland. Only Austria almost entirely uses prospective tariffs (96%) (20).

2.2 Changes in health facility funding methods

After describing the main principles of activity-based payment[21] (2.2.1) and its consequences in terms of incentives, the methods through which it is applied in France will be summarised (2.2.2).

2.2.1 The principle of activity-based payment

The aim of the DRGs is to propose a payment system based on the actual activity of the hospital taking account of the range of clinical cases (case mix) and of the observed activity. The payments received by the hospital are then obtained by multiplying the tariff for each DRG by the number of cases treated annually and adding the additional payments which may vary in type and calculation method between countries.

► Tariff-setting methods

The amount of the tariff for each DRG calculated by *Medicare* in the United States is determined by multiplying a basic payment by a scale which measures the relative complexity of the care.

The tariff for each DRG takes account of the full cost of care. The sum for staff salaries is adjusted by a relative cost index in order to take account of geographical differences in pay. The tariff scales are updated annually (22).

From 2008 in this country a new DRG classification system was adopted based on the level of severity (22). The level of severity is determined by related complications and co morbidities (no co-morbidities, no major co-morbidities, a major co morbidity).

Additional payments are received by hospitals:

- which carry out training;
- which manage a larger number of socially disadvantaged patients;
- which manage a large number of "*outlier"* patients, i.e. patients whose management costs are particularly high;
- which manage community or exclusively *Medicare patients;*[22]
- some rural community hospitals are classified as critical access areas (CAH –*Critical Access Hospitals*) and are paid according to their actual costs.

It is the calculation methods for tariffs developed by *Medicare* which have incentivising consequences rather than the new system of classification of stays by DRG. This is described below.

► Improvement in efficiency based on the principle of competition by comparison

The tariff for each DRG calculated by *Medicare* is a *proxy* for the average cost for all hospitals participating in *Medicare* for a given procedure or act.

This tariff-setting based on the average cost of all facilities has incentivising benefits which were demonstrated theoretically by Shleifer in 1985 (23). The model which has developed since refers to economic theory and is called the competition by comparison model ("*Yardstick competition*").

A. Shleifer (23) sought to establish the most efficient way of allocating resources for a group of companies belonging to the same production branch for which conventional economic market regulation did not function (for example, companies providing public services with regulated tariffs).

[21] The term used initially was disease-based tariffs although this was then replaced by the broader concept of activity-based payments in France or *Activity-Based Financing* in other countries.

[22] *Medicare* is generally not the only financer for hospitals. Nationally, one third of payments comes from *Medicare*, another third from private insurers which use the DRG groups but negotiate their tariffs annually with each of the hospitals. The remainder of the financing comes from *Medicaid* (the federal programme for payment for socially disadvantaged people) and direct patient payments particularly from those who do not have health insurance.

For these companies, identifying production costs could potentially generate moral hazard behaviour[23].

Shleifer demonstrated that if the goods or services produced by these firms were allocated a single tariff, calculated as the mean or median cost of all companies, the regulator would have these companies compare themselves to a fictitious "*shadow firm*" company which would incentivise those with production costs above the mean to make efforts to change their production processes in order to reduce their production costs below the mean and at the same time encouraging those whose costs were below the mean to increase their activity (24-26). This mechanism should ensure the companies' productivity and reduce the income of others.

If a tariff using the principle of yardstick competition is applied to hospitals, this would be expected to have the effect of (21):

- reducing the cost of stay:
  - by reducing unnecessary investigations;
  - by replacing the most expensive procedures with faster and/or less expensive procedures;
- reducing the length of stay and "turning over beds" faster, as each stay generates a payment, helping to increase activity and reduce waiting lists;
- improving the diagnostics and procedures coding process to provide a better description of their activity.

Overall, the facilities with the highest gross profit margin (calculated as the tariff-cost difference -) for a group are deemed in this model to be the most efficient. These facilities are given incentives to increase their activities to the detriment of those which have higher costs and whose services are destined to disappear if they do not make the necessary efforts to reduce their production costs. The DRG tariff process therefore has consequences on the number of facilities in the sector and naturally leads to a concentration of activity towards those deemed to be performing best (i.e. those with the lowest costs) (27).

► These objectives however vary in the countries which have introduced them.

In practice, countries which use activity-based tariffs have followed many objectives which differ in their relative importance. The authors of a literature review carried out by three consultancy firms[24] (28) and published in 2011, intended to establish the activity-based tariff methods in Australia, pointed out that activity based tariffs introduced in countries were intended to meet eight different objectives:

- to increase productivity of services and their productive efficiency;
- to reduce patient waiting lists;
- to increase competition between facilities to improve quality;
- to encourage monitoring and *benchmarking*;
- to reduce excess capacity, particularly relating to hospital beds;
- to increase the transparency of facilities' funding;
- to improve patient choice;
- to harmonise payment mechanisms between public and private producers.

In order to be effective the tariff rules introduced had to be consistent with these objectives.

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[23] In the context of the principal-agent relationship, the concept of a perverse moral incentive assumes that the principal (i.e. the *Medicare* financer) does not know the amount of effort made by the agent (hospital). Asymmetry in information emerges before the contract is signed about the level of effort of the agent. The aim for the principal is therefore to propose a contract in which the proposed level of remuneration and level of effort required are stipulated in order that the agent accepts the contract.

[24] *Health Policy Solutions, Casemix Consulting* and *Aspex Consulting*.

The report also identified three methods for calculating tariffs which are generally used:

- tariffs based on the average of an observed cost distribution;
- standard tariffs or those based on best practice;
- tariffs set at a cost below the average of the observed costs to encourage improved efficiency. In this situation the tariff was calculated using different methods: the lowest quartile tariff or low outlier and the minimum cost tariff.

2.2.2 Use in France

Tariff-based activity (T2A) in France for health care facilities was introduced for public hospitals in 2004 and for private hospitals in 2005. Since 2008, it has funded all hospitals for all hospital stays in the areas of medicine, surgery and obstetrics (MSO).

In the same way as in the United States, activity-based tariffs are based on a payment per stay, which itself is based on the activity actually carried out by the hospital taking account of clinical case mix and severity and length of stay.

Only aspects useful in understanding day surgery tariffs in T2A will be discussed below.

Classification of stays

Each patient's stay appears in a standardised discharge summary (SDS) which describes the medical and administrative details of the stay, aggregating the medical unit summaries (MUS) produced by the different units through which the patient has passed. The SDS is coded and processed according to an algorithm which takes account of the main diagnosis (grouped by a major diagnostic category (MDC), the existence of coded operating procedures and if necessary, other information (age, concomitant diagnosis, etc.) and the length of the hospitalisation. This allows the stay to be allocated to a diagnostic related group (GHM) (French equivalent of the DRG).[25] Since version 11 of the classification (2009), which introduced a four level severity factor for the same type of stay, there are now almost 2300 GHM divided into 28 MDC. The previous version had less than 800 (29).

One of the operating principles of T2A is that production costs for the GHM have to be covered overall by the tariffs (GHS) (30). Reference costs are therefore calculated by a public administrative body, the Agence technique de l'information sur l'hospitalisation (ATIH [French Technical Hospitalisation Information Agency]). These are used as the basis to produce the GHM tariffs which are paid by National Health Insurance for each hospital stay.

Calculation of average cost of hospital stays

A national average GHM-related stay cost is calculated from the information extracted from the hospital analytical accounting provided by around one hundred volunteer hospitals.[26]

Several procedures are used to adjust the costs provided directly by the hospitals:

- as the average costs depend on sample case mix, ATIH adjusts the raw values obtained from the sample;[27]
- a "smoothing" procedure is used to detect and exclude stays with an abnormally long or short duration and those with very high or low costs (only 92 stays in 2007) (21);
- in addition, a specific tax allowance factor is applied to the costs obtained to account for teaching, research, reference and innovation work (MERRI) ranging from 1.2 to 16.6% and

[25] Equivalent to the DRGs, although France developed it own classification which is not therefore superimposable on the current one in the United States, or in other European countries.

[26] 43 private and 62 public hospitals out of a total of 2,760 hospitals in France in 2010.

[27] A "bedding down" procedure using a programme known as SAS CALMAR, developed by the Institut national de la statistique et des études économiques (French National Institute for Statistics and Economic Studies). This programme is used to adjust a sample by weighting individual values using ancillary information available on specific variables known as bedding down variables.

occasionally increased by a geographical factor[28] ranging from 7% for Île-de-France to 30% for hospitals in La Réunion.

The same methodology is used for public and private facilities and enabled a joint national cost scale (ENCC) to be constructed based on the average cost of the hospital stay. The ENCC forms the basis of activity-based tariffs.

Overall, the full ENCC costs include clinical expenditure (MSO and mixed resuscitation costs, medical-technical expenditure, medical and general logistics expenditure, direct costs - including fees and procedure-based remuneration), but excludes infrastructure costs.[29]

Setting of GHS tariffs

The tariffs are set by the Ministry of Health and adjusted against the ENCC to take account of constraints of global expenditure allocation for hospitals which are allocated annually in the objectif national des dépenses d'assurance maladie (ONDAM [National Health Insurance Expenditure Target]) which is passed by Parliament (21) and the public health priorities or policies intended to promote a particular type of care (for example home hospital care and day surgery) (30).

The known ENCC costs are offset by two years with respect to the tariffs (2009 for ENCC for 2011 tariffs).

The tariffs are also weighted for each hospital by a "transition coefficient" providing progressive (internal) convergence between hospitals belonging to the same category (public or private) in order to avoid negative effects of too sudden a change in tariff model. The coefficient is intended to be removed (i.e. equals 1) after 2012.

Amounts received by the hospitals are then the tariff for each stay related group (GHS) multiplied by the number of cases treated annually. Two T2A tariff scales are available depending on the initial tariff method: block budget (BB) for public and ex-PSPH hospitals (private hospitals providing public services) (ESPIC),[30] and as part of a national quantified objective (OQN) for private for profit centres.

The facilities also receive additional monies which are in addition to the GHS funding: these are the consultations and external procedures, the so-called "class 2" payments (which are paid by the patients), medicines and medical devices invoiced in addition, single payments for specific activities (particularly emergencies which until 2008 received a single payment per attendance), MIGAC (general contractual assistance work) and MERRI (teaching, research, reference and innovation work) (29).

2.2.3 Limitations of activity-based tariffs

An activity-based tariff system generates a number of underlying incentives (reduced length of stay, seeking to achieve financial break even, increased activity when costs are below tariffs) which are different from those seen previously (block contract, day payments or procedure-based payments which vary by country).

It also has many limitations highlighted extensively for other countries in the international literature and, for France in the recent reports from the Mission d'évaluation et de contrôle de la sécurité sociale (Social Security Assessment and Control Mandate) by the Senate Committee for Social Affairs (20), the General Inspectorate for Social Affairs (31, 32) and the General Inspectorate for

[28] The purpose of the geographical weighting factors is to increase the tariffs for hospitals located in one of the six regions presumed to have higher costs (Corsica, Guadeloupe, Guyana, Île-de-France, Martinique and La Réunion) (30).

[29] The infrastructure costs (buildings amortisation charges and loan charges regardless of destination) are presented in the ENCC although they are not included in the "full costs" and therefore in T2A costs which suggest that the major part of the buildings investment costs and financial costs are funded other than by the tariffs (30).

[30] From 2009, as part of the HPST law, the classification of hospitals has been amended. Ex-PSPH private hospitals have become ESPIC "private health care hospitals for community benefit" (ESPIC).

Finances (33); the main features of these (non-exhaustively) are shown below in so far as these are liable to have an impact on the main incentives in day surgery tariffs.

► A tariff system which promotes increased volume and which requires a global macroeconomic framework to be introduced

By encouraging hospitals to carry out more procedures with a positive profit margin (i.e. when the tariff is higher than the production cost), GHM tariffs potentially cause a volume-related increase in expenditure, particularly as activity-based tariffs are an instrument which according to IGF (33) aim above all to meet an unsatisfied demand or create a new demand. This is due to the fact that it was partly designed in other countries to compensate for deficiencies in the care offered or in waiting lists.

According to IGF (33), this approach of increasing volumes has led hospitals to opt more for an income maximising approach rather than to reduce their costs. It also found an increase in the number of hospital stays from 18 million in 2002 to 21.5 million in 2009, although it recognised that it is complicated to isolate the role of T2A in this increase.

The increase in volume trend has been confirmed in a study carried out by Or *et al.* for IRDES (34). This work showed that activity (number of stays) and hospital production (stays weighted by *case mix*) in public hospitals had seen a sustained increased between 2002 and 2009, regardless of type of activity, with a more pronounced rise in surgical stays. A large rise in day surgery sessions and stays has been found in private for profit hospitals in parallel with a fall in full hospitalisation stays in obstetrics and medicine.

In order to reduce this trend, several countries have supported the introduction of activity-based tariffs with mechanisms designed to control hospital expenditure with an overall local (Germany, Great Britain) or national (France) budgetary envelope (35). This occurs in France through the hospitals budgetary sub envelope in the National Health Insurance Expenditure Target (ONDAM).

As the Mission d'évaluation et de contrôle de la sécurité sociale (MECSS [French Social Security Assessment and Control Mandate]) highlighted in its report to the Senate in 2012 (20), total expenditure in activity based funding depends firstly on the tariff used and secondly on the volume or number of procedures and services invoiced. The overall budgetary envelope allocated to reimbursable health expenditure is closed via ONDAM and any increase in this envelope is restricted by an annual rate which is passed by Parliament. The tariff scale is not therefore based only on the observed production costs of the hospital, but also takes account of the overall macroeconomic budgetary constraints. The tariffs often therefore remain stable or even fall in order to fit into the price-volume constraints set by ONDAM.

France has therefore chosen to regulate by tariffs rather than by volumes, without taking account of the activity of each centre considered individually. According to IGF (33), there is an inconsistency between the expected efficiency target for hospitals inherent to the introduction of activity-based tariffs and pressure from ONDAM. The ONDAM constraints apply consistently and equally across the GHM and apply to all of the hospitals including those which are already the most efficient, i.e. those which have the lowest profit margins in terms of the achievable efficiency gains.

► Failure to count the hospital as an organisation incorporating day surgery activities

The price-cost adjustment is based on a calculation of the difference from the cost of a theoretical panel of hospitals. Regardless of the adjustment made, it does not take account of the production conditions for each hospital. These conditions may result in it having costs which are above or below the tariff.

- By introducing a procedure-based tariff it is implicitly assumed that production processes are independent of each other. An isolated tariff is meaningless if the organisational aspects are not taken into consideration. As a result:

- a combination of certain procedures within a service may be less expensive than another combination of procedures in another service (economies of scope);
- the national tariff for all hospitals, regardless of size, assumes that production costs do not vary according to the volumes produced (no economies of scale) (36) or that priority be given to those with the highest activity.[31]

- More generally, it ignores the fact that the production is incorporated into a larger organisational structure (37), the hospital, which has many objectives and a very wide range of different activities (it is considered to be a multi-product organisation) in which procedure based incentives may be perverse and as a result the parties concerned do not know which type of activity to concentrate their efforts on (38).

► Failure to take account of the appropriateness of the care provided

Activity-based payment models do not in themselves offer any incentive to improve the quality, appropriateness and efficiency of the care provided. They promote an increase in product volumes and in hospitalisations and even readmissions.

Activity-based tariffs are liable to cause short term (short-sighted) and targeted (tunnel vision) optimisation of funding behaviours (38) to the detriment of a long-term view, leading the hospital to redirect its activities or choose to carry out new activities. For example, a hospital which achieves positive profit margins on its conventional surgery activities will not be incentivised to develop day surgery activities.

In activity-based tariffs the reference practice or scope of appropriate care have not been defined medically as such but have been derived from the average observed costs in the hospital departments (or medians in some countries) for each procedure. It sets the average or median cost as the norm towards which hospitals should move, without assessing the appropriateness of the norm, either economically or medically (24). As a result, if all of the hospitals have inefficient practices or if only a minority of them are efficient, activity-based tariffing will maintain areas of inefficiency (excessive costs and/or suboptimal medical practice).

If the DRGs are not sufficiently consistent across clinical cases, the payment for the most complex cases will be too low for the hospital and it will therefore make a negative profit margin on these cases. The temptation then is for them to select simpler and/or more profitable cases and to cream-skim on or specialise in certain activities and/or in specific population groups when they can(21).[32] Cream skimming or case selection can occur both between GHMs and within the same GHM. Hospitals which carry out day surgery would select the simpler or more profitable cases in order to optimise the profit margin they make from the tariff.

According to some authors (24, 39), the tariff model should therefore adjust prices for the quality of care provided. If quality is related to the procedure chosen (for example, day surgery is considered to be of better quality because it avoids adverse events and provides greater patient satisfaction) the difference in price should reflect the difference in quality compared to conventional surgery. This implies, however, that information is available about the result of the care for each patient. It also assumes that it is possible to differentiate the *case mix* effect, the care structure effect (type of hospital) or type of care.

The IGF report in France (33) also highlighted that introducing yardsticks was still insufficiently developed to allow an analysis by GHM. It cites the *"Hospi-Diag*" reference standards which contain a group of around sixty indicators and the production of medical practice standards by HAS. IGF recommended that medical practice standards be produced by HAS at least for the commonest groups of stays which would then be valued along the lines of a "*Best Practice Tariff*" similar to the one that has been set up in the United Kingdom (cf. below part 2.6.1).

[31] In fact, whilst large economies of scale can be made, centres with high activity may benefit from this and achieve a larger profit margin as the difference between the same tariff and costs will be higher.

[32] Cf. chapter 2, Geissler *et al*., *Introduction to DRGs in Europe: Common objectives across different hospital systems* (21).

► Failure to take account of the patient pathway, which may reduce the quality of care

Tariffs set by DRG or its equivalents potentially have negative effects on quality. As:

- in order to maximise margins, the hospital may be tempted to prematurely discharge (*bloody discharge*) or transfer patients to other organisations which will then bear the costs of the post-hospitalisation management phase (21);[33]
- the hospitals may be tempted to break down patient stays by increasing the stays and promoting readmissions in order to maximise their tariff income;
- tariffs encourage concentration and specialisation of activities around a few producers which benefit from economies of scale. This concentration may improve the health result by facilitating learning (27) but may also restrict patient access to some facilities. Geographical distance, for example, limits access to day surgery.

Regardless, in the French situation, although many quality indicators are being developed, particularly under the auspices of HAS,[34] these are indicators which more measure quality of the care process than care quality indicators considered globally and their incorporation into the principles of tariffs is still at an exploratory stage.

According to DREES (40), it does not appear that the overall quality of care has fallen since the introduction of T2A. This observation is based on the results of the national serious adverse event (SAE) survey in health care facilities (ENEIS survey conducted by DREES in 2004 and 2009) (41, 42), which showed stable figures between 2004 and 2009, whilst a rise in the incidence of adverse events over this period might potentially have been expected because of changes in the age distribution of patients admitted to hospital, the technical complexity of the procedures and care and changes to working conditions, particularly as a result of reorganisations.

The finding, however, was different for surgery as the same study (41, 42) concluded that for SAEs "because of hospitalisation", the proportion of stays caused by avoidable care-related infections was statistically significantly greater in 2009 than in 2004 in surgical units because of a rise in operating site infections from procedures carried out in previous hospitalisations. As there has been no fall in the average length of stay across the whole sample, one reason may be a shorter stay in the previous hospitalisation when the infection is identified at the patient's home or suboptimal management of the operation wound in day surgery (41, 42). The link between this change in SAEs and the introduction of activity based tariffs has not however been established.

► A tariff system which has drifted away from the theoretical incentivisation model

The introduction of activity-based tariffs into the French system has resulted in decisions being made which have moved gradually away from the original theory of yardstick competition (33):

- unlike the *Medicare* model, French National Health Insurance is in a monopoly situation and is a single player and is limited by the macroeconomic constraints of ONDAM;
- the French system is less well provided for than other foreign models against some problems (no monitoring of appropriateness of care, open access to health care facilities without a *"gatekeeping"* system, no coordination between primary and hospital care, no regulation by volumes);

[33] Cf. chapter 6, Cots *et al*., *DRG-based hospital payment: Intended and unintended consequences* (21).
[34] *Via* the IPAQSS (quality and safety of care improvement indicators). The Direction Générale de l'Offre de Soins (DGOS [Directorate General for Care Provision]) and the Haute Autorité de Santé (HAS [French National Authority for Health]) launched a research project entitled "quality improvement financial incentives" (IFAQ) in July 2012 through a call for applications from public and private health care facilities with MSO activities.
The principle of this project is to experiment on a financial incentivisation method for the quality of hospitals, based on generalised indicators, the priority practices required for HAS certification and the level of computerisation of the patient records. Its aim is to identify the different operational methods which could take account of quality of care in funding hospitals.

- the French system has two distinct tariff scales, one for public or not for profit private hospitals, and the other for profit making private sector health facilities which has raised a problem with convergence of tariffs between the sectors;
- activity-based tariffs do not cover all hospital activities and at present continuing care, rehabilitation and psychiatric care are excluded;
- the average hospital costs are only very approximately understood:
  - ENCC only represents around a hundred hospitals and is not representative of either public or private hospitals,
  - some charges, (particularly staff by day-based analysis) are still based on days and not on stays which may partly contribute to the same day value being allocated to stays which may require a very different daily intensity of care. These allocation rules penalise short intensive care stays,
  - there are very wide variations in the cost of stays between ENCC facilities within the same GHM. IGF (33) in particular quotes the example of "day surgery lens procedures with or without vitrectomy", the costs of which in 2009 ranged from 193 to 16,556 € in the public or non profit making private sector (a ratio of 1 to 86) and 143 to 2,699 € in the profit making private sector (ratio 1 to 19), although it is not possible to establish whether these differences are appropriate (different medical practice, patients with different health or socio-economic profiles etc.), or inappropriate because of different levels of organisation or efficiency between hospitals;
- the progressively increasing difference in the relationship between costs and tariffs (referred to as the tariff neutrality principle in the IGAS report) (33) which is adversely affected by several factors:
  - the ENCC costs envelope is not identical to the "T2A costs" envelope, as some are not funded by T2A,
  - and the average raw tariffs obtained are then extensively corrected by statistical adjustments and also by the use of geographical coefficients, smoothing changes in tariffs to avoid excessively sudden effects on revenue, correction of some tariffs to take account of public health priorities or to encourage some practices (particularly day surgery).

Key points

The tariffs for day surgery need to be relocated within the broader framework of activity-based tariffs in which they sit. The major theories of activity-based tariffs were advanced in the United States by Prof. Fetter and his team at the start of the 1980s and were then applied in America by the *Medicare* federal health insurance for the elderly. They were then extended to most private insurers in the United States and then gradually spread with different methods and objectives to most European countries.

Activity-based tariffs are:

- **based on a description of the actual activity of the hospital by cost for stay related groups also taking account of the range of clinical cases (known as "*case mix*");**
- **the tariff applied to each stage is similar to the average cost identified in a pre-determined group of hospitals. This tariffs method has incentivising benefits identified by A. Shleifer in 1985 and known in economic theory by the term "Yardstick comparison".**

Most of the hospitals' income from activity-based tariffs is then obtained by multiplying the tariff for each stay by the number of cases treated annually and then adding additional funding, the types and calculation methods for which may vary between countries.

The principle of activity-based tariffing has gradually spread to most European countries and with different methods.

Activity-based tariffs in France (T2A) were introduced gradually from 2004 to 2008 in the block budget sector (public and private not for profit) and in 2005 as a quantified national objective (private for profit). Since 2008, it has funded all of the hospital stays in medicine, surgery and obstetrics (MSO).

This tariffs system produces changes in the hospitals' strategy sought by the regulator: a reduction in length of stay and attempting to achieve financial break-even between income and expenditure for each of the centre's activities, increased activity volume when calculated costs are below the tariffs in force.

It also has a number of failings or limitations in the French model which were highlighted in the literature:

- **the need for support, with an overall price-volume envelope (set in France in the French National Health Insurance Expenditure Target) to reduce the effects of increasing health expenditure at the risk of reducing tariffs uniformly and therefore distancing them from the calculated costs and no longer following the initial principle of tariff neutrality for each activity;**
- **silo thinking by activity, ignoring the fact that a hospital undertakes a combination of different activities (incentive methods for which may become perverse between the activities) and that other parties are involved in the patient care pathway;**
- **failure to define the envelope of appropriate care to be included in the tariff. The tariff calculation methods used implicitly set as the efficient production standard, the mean or median of the calculated costs without assessing the relevance of this standard either economically or medically.**

Overall, the T2A system has two forms of limitations, one technical as a result of the difficulties in collecting and calculating costs and the other more "political" due to the many occasionally contradictory objectives which the regulator wished to be involved in activity-based tariffs in France (improved efficiency through a yardstick competition process, price-volume macroeconomic envelope for hospital expenditure, incentives for public health priorities, and incentives to introduce certain practices - particularly day surgery).

According to IGF, these features make a negative contribution to the impact and significance of the price signal carried by the tariff, which would lead the T2A to gradually drift from an instrument which encourages efficiency to a budget allocation tool.

2.3 Day surgery tariffs within activity-based payments

The aim of this section is to examine the tariff methods used in a number of countries in order to pay for day surgery. This does not include a detailed description of the organisation of health systems in these different countries and their tariff systems,[35] but rather a summary of information which is available in the published literature or easily accessible by directly asking foreign experts about the tariff model used for day surgery (cf. questionnaire discussed in part 5 of the report).

HAS came up against two major difficulties in this work: most of the tariff-related documents were only accessible in the language of the country of origin and the tariff mechanisms used were incorporated into systems which were very different from the French situation (particularly multiple payers and regionalised systems). The information presented below is therefore partial.

2.3.1 Theoretical analysis of the tariff principle used for "*outlier*" stays

In constructing the activity-based tariff model, the length of stay is deemed to be a central indicator of hospital activity. For each stay, a mean length of stay (mean LOS) is calculated together with an interval of variation around this length of stay. If the length of stay is below the lower limit of the interval it is deemed to be an "*outlier*" and generally attracts a specific tariff. The distribution of lengths of stay is often asymmetrical with particularly long or short "*outlier*" stays compared to the mean length of stay.

The question of the cut-offs for length of stay then arises if we try to calculate costs of stays. Truncating rules then need to be defined, i.e. the upper or lower limits of the length of stay which will define the length of stay of "*outliers*" compared to "*inliers*". Generally, the limits are based on the mean or median mean LOS and setting boundaries against the interquartile differences and length of stay (21).[36]

► Methods of use in day surgery

In most countries the tariff setting methods for day surgery have followed those adopted for the "*outlier*" stays, i.e. "short term" (21)[37].

In this situation, when day surgery co-exists with conventional surgery in the same DRG, the day surgery is therefore treated in principle as an "atypical" length of stay. Only Northern countries (Estonia, Finland and Sweden) define "*outlier*" stays on the basis of costs and not length of stay.

"*Outlier*" stays (short or long) generally attract a tariff by applying an adjustment factor, either fixed or proportional to the length of stay (cf. figure 1). Regardless of the calculation method used, the tariffs for day surgery stays are therefore lower than those for conventional surgery (21).[38] This is justified by the lower calculated costs for day surgery stays. In addition, the aim of the adjustment, which intrinsically penalises the hospital, is intended to reduce premature discharges (*bloody discharge*) (43).

For day surgery, some countries have gradually given up this calculation method based on the concept of short *outliers,* although others still use it. Details are shown by country in the following section.

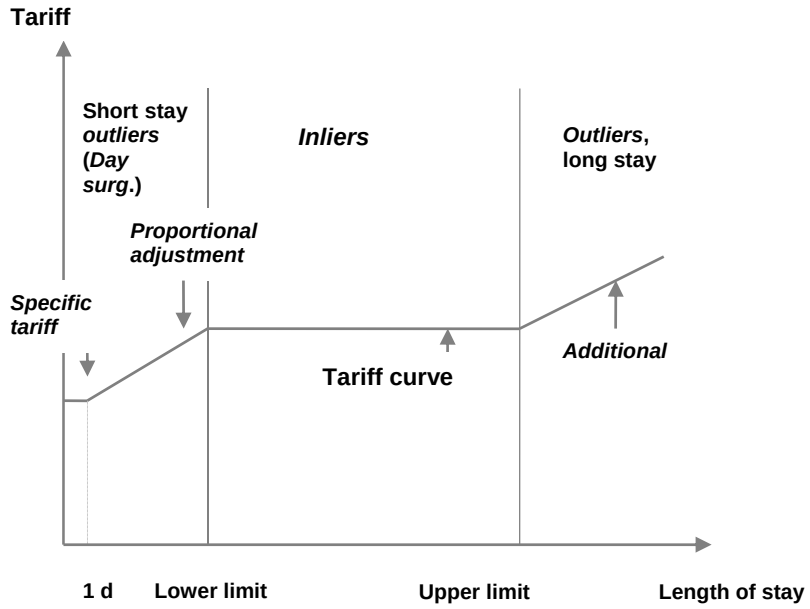
[35] For a detailed presentation of the hospital tariff systems in different European countries the reader can refer to the recent work on DRGs by the European Observatory on Health Systems and Policies (21).

[36] Cf. chapter 6, Cots *et al*. *Idem*.

[37] Cf. chapter 6, Cots *et al*, *DRG-based hospital payment: Intended and unintended consequences* (21).

[38] Cf. chapter 6, Cots *et al*, *Ibid*.

Figure 1. Graphical representation of tariff methods for "*outliers*" in European countries based on length of stay



Source : (21)[39].

2.3.2 Principles of day surgery tariffs used in European countries

The information below shows the initial findings from the literature analysis or observations "according to experts" for other countries when no publication was available. The main methods are summarised in table 2. The situation in the United States which proposes specific tariff rules depending on the type of centres which carries out the day surgery is not discussed in this part but it is examined in the study on tariff models for independent day surgery hospitals (cf. part 2.5.1).

Germany

The tariff for day surgery is set by the hospital using two methods:

- ***for procedures which are usually carried out in independent centres*** (cf. part 2.5.4 for a description of the independent centres in Germany): the day surgery tariff scale is used. The tariff has remained the same since 2010,[40] regardless of the type of centre which carries out the procedure;
- ***for procedures which can be carried out in independent centres or in a hospital***: the G-DRGs[41] apply with specific tariffs for day surgery (lower than conventional surgery) which include the pre operative investigations and post-operative consultation. Readmissions within 30 days for the same cause do not result in payments in order to reduce premature discharges.

  According to Broekelmann (44), the main restriction to the increase in hospital day surgery arose initially from too low a tariff for day surgery stays, which were on average invoiced at only 25% of the equivalent tariff for conventional hospitalisation (45). Since 2004, a new law on integrated care (*Integriete Versorgung*) led the German health insurance funds to set contracts paying day surgery at a tariff of between 50 and 90% of the conventional hospitalisation tariff (46);

[39] Cf. chapter 6, Cots *et al*., *DRG-based hospital payment: Intended and unintended consequences* (21).

[40] Previously the tariffs were different as no agreement was reached between the hospitals and surgeons carrying out day surgery, either for the procedures catalogue or for the tariffs. There is now a uniform tariff called the EBM.

[41] The DRG tariff system became mandatory in Germany in 2004 for approximately 2,000 centres (43).

- specialist surgeons usually practising in independent centres can carry out hospital day surgery procedures. In this situation the centre remunerates them through the day surgery tariffs but receives the G-DRGs tariff;
- the hospitals invoice patients who have private insurance (approximately 11% of the German population) using a different tariff scale (called the GOÄ).

Austria

The cost of stays involves two components:

- one component expressed in days (a cost over the entire stay such as non-procedure nursing care and accommodation costs);
- and a "performance" component which includes direct procedure related costs (21)[42] such as staff costs during the surgery calculated from 15 reference hospitals.

The calculation for day surgery tariffs differs depending on whether or not they belong to an approved list of procedures which can be performed on a day surgery basis:

- if the stay is approved for day surgery, the day surgery tariff is the same as a one day stay tariff;
- if the stay is not on the list of approved procedures it is paid at 100% of the performance component whereas the day component is reduced using the following formula:

  Score for a short "*outlier*" stay = PC + $\frac{(LDFscore - PC) * (x+1)}{t+1}$

  ***Where*:**

  - x number of hospitalisation days for the stay (which in this case is below the pre-determined lower limit);

  - the LDF total stay cost is the relative value of the stay compared to all stays;

  - LDF score is the coefficient of the stay in question from which the PC "cost performance" is subtracted. All that remains therefore is the component expressed in days;

  - t is the cut-off point defined for the short stay "*outlier.*"

  The amount received by the hospital for the day component is therefore adjusted. The adjustment depends on the length of stay defining the low "*outlier*"; the higher the t value the greater the adjustment.

The tariff used in Austria for procedures which are not approved for day surgery assumes that the costs of conventional hospitalisation and day hospitalisation are identical for the technical part of the stay and must therefore be paid at the same tariff and that the difference in cost between the two types of stay only arises from the hotel services component or post-procedure nursing care. In this situation, the day component is funded at only 10% of the calculated day component for short stay "*outliers*".

Belgium

Hospitals are mostly funded in Belgium by a block budget known as the financial resource budget (FRB). Activity-based tariffs are not used to pay for day surgery. Since 2002, however, a list of surgical services (list A) has been created. Hospitals receive additional funding in their financial resource budget if they carry out list A procedures in day hospitalisations (day surgery) (47).

Denmark

Alongside the Danish DRG classification known as the DkDRG, there is a specific classification for day surgery procedures known as DAGS (*Danish Ambulatory Grouping System*). The tariffs are

[42] Cf. chapter 11, Kobel C. et Pfeiffer KP, *Austria: inpatient care and LKF framework consequences* (21).

set nationally. Procedures which can be carried out both in conventional hospitalisation and as day surgery are "grey zone" DRGs. The list of procedures in this zone is updated annually. For these stays the tariff paid is identical for the DkDRG and DAGS, regardless of type of hospitalisation (48, 49).
The surgical procedure costs are calculated from hospital data using the length of the procedure and then allocating the staff resources used.

Spain

Spain does not have a national tariff system. Tariffs are specific to each region although there is an inter-regional compensation system based on DRGs.

The conventional hospitalisation tariff in Catalonia and the day surgery tariff are identical for commonly performed day surgery procedures. Day surgery represents approximately 40% of activity. This tariff method is designed to increase day surgery and reduce waiting lists and has had the expected effect as day surgery increased by 75.1% between 2001 and 2007 (50).

Great Britain

The disease-based tariff method is relatively similar to the one used in France and is part of the *Payment by Results* system introduced in Great Britain in 2002 (25) :

- patient stays are classified into groups consuming the same type of resources known as "*Healthcare Resource Groups*" (HRGs). The last version of HRGv4 was introduced in 2009 and included more than 1,400 groups;
- hospitals receive a single payment directly related to their activity;
- the amount of the national payment (*reference cost*) is calculated from the average hospital cost for each activity. This tariff however is adjusted to take account of (51) :
  - local differences in economic living conditions (using a coefficient known as the *Market Forces Factor* – MFF),[43]
  - the two year difference between cost calculation and tariffs (known as the *Uplift Factor*),[44]
  - the payment is adjusted to take account of whether the procedure is planned or unplanned, introducing an additional cost compensation for unplanned stays (52).

The difference with France is that the cost data are known for all public hospitals (24), whereas in France it is based on a sample of volunteer hospitals.

The tariff used in day surgery and conventional surgery was identical until 2009-2010 in order to encourage professionals to carry out day surgery, which was believed to be less expensive (21).[45]

The identical tariff calculation method was based on a mean, weighted by activity, of the costs of each type of care. If the recorded activity for a day surgery procedure was 4,000 procedures at a cost of £500 each and the cost of conventional surgery was 1,000 procedures at a cost of £1,000 per procedure, the tariff applied was £600 [46] (53). These tariffs were also adjusted to take account of the difference in local prices of the various factors.[47]

There is no restriction on the total volumes of surgical activity as the British Government is seeking to reduce waiting times and therefore maximise the increase in this activity (52).

[43] The MFF takes account of regional differences in labour costs, financing costs, rents and infrastructure.

[44] The reference costs are retrospective, whereas the payments received are prospective. The reference costs are therefore adjusted to take account of changes in prices over two years.

[45] Cf. chapter 12, Mason A. *et al*., *England: The Healthcare Resource Group system* (21).

[46] I.e. (4,000 * 500) + (1,000 * 1,000) / 5,000.

[47] Costs of real estate and labour for non-medical staff, and rents. An "MFF" (*Market Forces Factor*) coefficient is applied to the payment by results tariffs.

Since 2010, the tariff system for some procedures has been modified in order to incentivise more towards an increase in day surgery, with the introduction of the principle of the *Best Practice Tariff* – (BPT). This new tariff mechanism is discussed specifically in this report (cf. part 2.6).

Following the introduction of the possible choice of provider introduced into the NHS in 2006, patients due to undergo a day surgery procedure must now be offered a choice of four to five centres at least one of which must be private. The aim is to encourage outsourcing[48] and develop independent treatment centres known as ISTCs[49] (cf. part 2.5.2) introduced into the NHS in 2003 (54). The most commonly outsourced procedures are general surgery, orthopaedic surgery, ophthalmology and endoscopy (55).

Hungary

Government health insurance reimburses all care contained in an overall basket of 283 procedures. The tariff for these procedures is the same for day surgery and conventional surgery (56).

Ireland

The classification of stays was extended in the middle of the 1990s to take account of day care procedures (*Day Patient Grouper* – DPG) which contains 73 groups of stays. In 2002, this classification was replaced by a *Day Grouper* classification containing 169 groups (21).[50] In both cases the classification was based on the main procedure rather than the diagnosis. Since 2003-2004, *Adjacent DRGs* have been used to classify day care stays. These appear in the same nomenclature as the conventional "AR-DRGs" stays. The tariff is lower for day care than for conventional hospitalisation.

Italy

The DRG payment system has been set up in Italy since 1994 for public and private centres. Until 2007, the day surgery tariff was 75% of the conventional surgery tariff. Since 2007, some DRGs have been remunerated at the same tariff as day surgery (57). The tariff methods differ between region.

Norway

Norway is one of the countries in which day surgery has increased considerably during the 1990s. According to the IAAS, the day surgery proportion was over 50% for all surgical procedures in 2009 rising to even 88% in the list of 37 selected procedures (17).

Over the period from 1964 to 2002 in this country hospitals were under the legal control of the 19 municipalities. Since 2002, they have moved under the governance of state-controlled regional health trusts. The tariff system has also changed profoundly (58, 59).

Before 1997, hospitals were funded by a block budget allocation from the municipality. This funding covered hospital expenditure with or without hospitalisations, except for external consultations. The procedures used in day surgery were subject to a special tariff funded by the State and based on a tariff list (58). This was a centralised incentive to increase day surgery, as the procedure fell outside of the general funding.

Since 1997, the block budget allocation has been replaced by activity based funding.[51] In this context, day surgery funding with a specific tariff remained unchanged until 1999, when day

[48] *Outsourcing*.

[49] *Independent Sector Treatment Centres* (ISTCs).

[50] Cf. chapter 15, O'Reilly *et al*., *Ireland: a review of casemix applications within the acute public hospital system* (21).

[51] Approximately 79% of hospitals were funded by activity from 1997, the remainder setting up this new funding method gradually over five years. In 1997, 70% of hospital funding was from a block budget allocation, and 30% from activity-based tariffs. One year later the activity component had increased by 15 percentage points and then rose to 50% in 1999 and to 55% in 2002.

surgery activities were included in the activity-based tariff (58) with identical tariffs to those attracted by conventional surgery.

The expected effects seen in Norway are assessed in more detail further on in this report (cf. part 2.4.1, work by Martinussen).

Portugal

Health care is entirely free in Portugal. From 2007, the Portuguese authorities amended tariffs for surgical procedures in order to limit health expenditure. The tariffs for day surgery are the same as those for two days of hospitalisation. The tariff is counter-incentivising to the development of day surgery. The Portuguese Committee for the development of day surgery proposed a 50% reduction in the day surgery tariff in 2008 to an identical tariff attracted by one day hospital admissions for the most commonly performed day surgery procedures (60). An 18% reduction is applied to other procedures.

Sweden

Sweden uses the DRG classification adopted by the Northern countries called the Nord-DRG which included 983 DRGs in 2010. The Swedish system is regionalised. Tariffs are based on identified hospital costs depending on the categories of facilities. The tariffs vary, although are lower for day surgery than for conventional surgery.

Switzerland

The day surgery tariff in Switzerland is the same for public and private hospital operators (the tariff scale is contained in the Tarmed category[52]) (61).

This tariff was introduced in 2004 and has been extensively reduced for day care procedures. The tariff includes:

- a medical component which covers the costs and payments for surgeons and assistants;
- a technical component intended to cover the costs of operating theatres and recovery rooms;
- anaesthesia attracts a tariff according to the same principle, with a payment which is increased with regard to the risk of the procedure set according to the *American Society of Anesthesiologists* (ASA) classification (62).

The aim of the identical tariff between sectors is to promote public private cooperation by enabling a public sector surgeon to practice in a private hospital, as the medical component may be reimbursed by the private to the public hospital which employs the surgeon whilst the private hospital remains responsible for the technical component (61).

In a five year retrospective study from the second half of 2004 to the first half of 2009 on 602 procedures at the Lausanne University Hospital, Vuillemier *et al*. (61) found that public surgeons invoiced an annual average of 37,877 Swiss francs and that assistants invoiced on average 15,387 Swiss francs, whereas their salaries cost the public hospitalt 28,120 and 13,452 Swiss francs respectively, i.e. a positive difference of 25.8% for the surgeon and 12.6% for the assistant. The authors concluded from this that the transfer of activities was financially beneficial to the public hospital. This study, however was only carried out in one hospital on a limited number of patients and is not generalisable.

The benefit of this type of arrangement is:

- *for the public hospital*: maintaining relatively low waiting lists and having senior public sector surgeons training surgeons who practice in private centres;

[52] In Switzerland, day surgery activity is invoiced with "Tarmed", the identical medical tariff which applies to all day care medical services provided in a hospital or private consulting room in Switzerland. The Tarmed point value is negotiated on a canton basis with the insurance companies and if there is disagreement they are set by a Council of State order. Source http://dg-gouvernance.hug-ge.ch/finances/tarifs.html.

- *for the private hospital*: increasing bed occupancy rates, exposing permanent staff in the private hospital to different patient categories and different surgical procedures and covering the centres' operating costs;
- *for the patient*: reduced waiting time before the procedure, having a procedure carried out under good technical conditions. The authors reported a patient satisfaction rate of 98%.

The Swiss tariff system for day surgery has been clearly set up to facilitate public-private cooperation and better manage the overload on public hospitals, causing long waiting times.

Table 1: The DRG component in hospital funding, type of stays studied and tariff setting methods for day surgery in European countries

	% of DRGs in hospital funding*	Type of use of the DRGs (in 2010)	Determination of "*outliers*"	% DS (IAAS), 2009	Same tariffs	Reduced cost/additional cost	Other rules
Austria	96%	Budget allocation, planning	Length of stay (interquartile)		For a list of approved procedures.	-	Unapproved procedures: two part tariff: one "performance" component with an identical CH and DS tariff + a "day" component linked to length of stay.
Germany	80%	Payment	Length of stay (parametric)	-	Still few for some procedures.	Initial mean tariff 25% of the CH tariff for day surgery (i.e. a 75% reduction). Since 2004, agreement reached with the health insurance funds to bring the tariff to between 50 and 90% of CH.	-
Belgium	-	Budget allocation		43%**	-	-	Overall budget
Denmark	50 to 70% depending on regions****			89%	Two nomenclatures are used: DkDRG and DAGS for ambulatory care, an identical tariff when the procedure can be carried out with both care methods.	-	-

Table 1 (continued):

	The % of DRGs in hospital funding*	Type of use of the DRGs (in 2010)	Determination of "*outliers*"	% DS (IAAS), 2009	Same tariffs	Reduced cost/additional cost	Other rules
Spain/Catalonia	15-20%	Payment, *benchmarking*	Length of stay (interquartile)	87%	No national system: DS and CH tariffs identical in Catalonia for commonly performed ambulatory care procedures.	-	-
Estonia	39%	Payment	Cost (parametric)	-	-		*Outliers* determined by costs, tariffs not identified
Great Britain	60%	Payment	Length of stay (interquartile)	62%	Identical tariff for most procedures.	Additional payment via the *Best Practice Tariff* for 14 procedures since 2011.	
Finland	Varies depending on hospitals	Planning, management, *benchmarking*, invoicing .	Cost (parametric)	87%	-		District hospital system, methods of payment vary between districts, not all use the same Nordic DRGs classification, *outliers* based on costs.
Hungary				-	Identical DS and CH tariff		-
Ireland	<80%	Budget allocation	Length of stay (parametric)	-	-	DS tariff calculated separately, DS tariff lower than CH.	-

Table 1 (continued):

	The % of DRGs in hospital funding*	Type of use of the DRGs (in 2010)	Determination of "*outliers*"	% DS (IAAS), 2009	Same tariffs	Reduced cost/additional cost	Other rules
Italy	Varies by region.	Payment		64%	Identical tariff for some DRGs since 2007.	25% reduced payment for day surgery until 2007.	-
Norway				64%	Same tariffs since 1999.	-	Specific tariff in addition to block budget until 1999.
Netherlands	84%	Payment	-	58%**			System varies depending on insurance.
Poland	>60%	Payment	Length of stay (interquartile)	-	-	Variable depending on procedure up to 20% reduced payment.**	
Portugal	80%	Budget allocation	Length of stay (interquartile)	43%	DS tariff identical to two days of hospital admission, same tariffs since 2008 for the most commonly performed day care procedures.	18% reduction for procedures performed less commonly as day care.	

Table 1 (continued):

	The % of DRGs in hospital funding*	Type of use of the DRGs (in 2010)	Determination of "*outliers*"	% DS (IAAS), 2009	Same tariffs	Reduced cost/additional cost	Other rules
Sweden	Varies depending on hospitals	*Benchmarking*, performance measurement.	Cost/length of stay (parametric)	80%	-	Tariffs are based on hospital costs and differ depending on types of hospital, lower for day surgery than conventional surgery.	
Switzerland	Varies by canton and health insurer.			55%	-	-	Same tariffs for public and private sectors to encourage public to private outsourcing.

Sources :* http://www.mig.tuberlin.de/fileadmin/a38331600/2012.lectures/Seoul_2012.05.21.ag.pdf; ** in 2004, *** *European Observatory* (21) + **** Hit Denmark

2.3.3 Tariffs for day surgery in France

In 2004, activity-based tariff setting (T2A) initially planned differential tariffs for hospital admission and day care management.

In order to promote day sugery development, incentivised tariff measures were gradually introduced in its favour. A full description of the tariff rules and history of their evolution in France has been considered in a HAS-ANAP report "Day surgery : an overview" (3); here we only review the main features of tariff setting in force when the report was written.

► Successive modifications to the coding for day surgery stays in T2A

The stay classification system is reviewed periodically. Several changes have had consequences on the scope and classification of day surgery which has gradually enabled the sessions and other short stays to be better isolated:

- between 1992 and 2003[53] day surgery was at first not distinguished from sessions and stays under 24 hours in major category 24 (MC 24);[54]
- MC 24 was then extended to attendances and stays under two days long[55] (2004-2005)[56] then from 2006 to 2008[57] only to stays under two days long;
- The major amendments were introduced in version 11 of the GHS classification used since 2009 (circular No. DHOS/F2/F3/F1/DSS/1A/2009/78 of 17 March 2009). These allowed day surgery stays or those stays potentially eligible for day surgery to be better isolated:
  - MC 24 was removed and true day surgery groups were created in the GHM roots (for which the admission date is the same as the discharge date) coded with the letter J.
  - in addition, most of the GHM roots were classified into four severity levels (from 1 to 4, level 1 being the least severe), representing the patient's state, with an improved and broadened list of associated complications and co-morbidities (ACC) and age effects. Patients deemed to be eligible for day surgery are generally those of severity grade 1.

► Introduction of the same tariff for some GHM

Initially (in 2004), the tariff for day surgery was calculated by applying a deduction from the full hospitalisation tariff.

This counter-incentive tariff method led hospitals to keep patients for at least a night in order to receive the additional tariff which was also more financially beneficial if the intensity of care was greater at the beginning of the stay for surgery (during the procedure). In order to promote an increase in day surgery different tariff incentives were then put in place from 2007:

- **from 2007**[58] (circular No. DHOS/F2/F3/F1/DSS/1A/2007/74 of 21 February 2007), five GHM day surgery roots[59] attracted an activity payment based on national tariffs. In addition, to make day surgery more attractive, 15 pairs of GHM roots corresponding to short term hospitalisation and hospitalisation for more than two days were established.[60] The decision was also taken to reduce the difference in tariffs in these pairs by 50% for hospitals previously in receipt of block budget funding;

[53] Equivalent to versions 1 to 7 of the GHM classification.

[54] The "roots of the GHM" are described as major diagnostic categories (MDC 1 to 23, 25, 26, when the information is provided by the main diagnosis for the stay) and the major categories (MC 24, 27, 28, 90, when this is provided by information other than the main diagnosis).

[55] In T2A, a length of stay of one or two days represents one or two nights spent in the hospital.

[56] From version 9 of the GHM classification.

[57] Version 10 of the GHM classification

[58] Compared to January 2008 for other activities.

[59] GHS 8002 Lens procedures, GHS 8005 Transtympanic drains (grommets), GHS 8008 Vein ligation and stripping, GHS 8023 Circumcisions, GHS 8053 Carpal tunnel release and release of other superficial nerves.

[60] One or more GHM may be involved.

- **in 2008**, the *rapprochement* of tariffs for hospitals previously in receipt of block funding was continued (circular No. DHOS/F2/F3/F1/DSS/1A/2008/82 of 3 March 2008), for GHM roots with relatively similar tariffs;
- **in 2009**, following the introduction of the 11th version of GHM (circular No. DHOS/F2/F3/F1/DSS/1A/2009/78 of 17 March 2009), the same tariff between the day stay (coded J) and the first level of severity in conventional hospitalisation (coded with the figure 1 at the end of the GHM number) was introduced for 18 GHM roots[61] out of a total of 90. The same tariff corresponds to the mean J stay cost and costs of level 1 stays in conventional hospitalisation weighted by the proportions of care found in the sector (ex-BB ex-OQN) where the level of day surgery is highest;[62]
- **in 2012,** new GHM J roots were set at the same tariff (particularly those with a mean length of stay of three days or less);
  - 12 GHM roots in this category were identified. These were chosen because they had at least two thirds of procedures in common between J and level 1 full hospitalisation after being approved medically by the learned society experts. For these GHM roots the tariff was calculated from the mean of the J tariff and the level 1 tariff weighted by the care proportions. The list of these GHM roots and tariffs adopted for 2012 are shown in appendix 2 to this report.
  - nine new J GHM roots were created in GHM roots which had not contained them until that point. These GHM were adopted based on a sufficient number of stays, and common stable practice over time. The GHM roots were also subject to the same tariff principle.

► Tariff rules applicable in 2012

In 2012[63], three tariff methods existed for day surgery.

1. The same tariff

o *GHM roots with a J Code*

The GHM roots with the same tariff were greatly increased in number from 2012. Overall, the number of J code GHM and the same tariff increased therefore from 18 in 2011 to 39 (18 + 12 + 9) in 2012.

According to ATIH, 69% of day surgery carried out in the ex-OQN sector and 60% in the ex-DG sector attracted the same tariff.[64]
These GHM roots with the same tariff represent approximately 77% of day care activity.

o *Non J code GHM roots*

Since 2010, there has no longer been a lower limit (and therefore no concept of an *outlier*) for GHM roots with a low mean LOS (i.e. between 1.4 and 2.5 days). All of the stays, both day case and non day case were therefore paid at the same tariff.

[61] The initial list of the 19 GHM with the same tariffs between day care and full level 1 hospitalisation was updated by removing interventional GHM 03K02J "Mouth and tooth disorders with specific extractions, repairs and dental prosthesis treated on a day case basis") which had initially been included in the list (and which is not in fact DS according to the French definition). We now refer to the "historical" list of the 18 single tariff GHM.

[62] DGOS, Day surgery, Finance agreement, 26 January 2012.

[63] Source: Brami – CR GAM 1 – HAS.

[64] Brami M. ARS-PACA Regional Study Days, slide presentation on 15 December 2011.
http://www.ars.paca.sante.fr/fileadmin/PACA/Doc/Actu_2011/Chirurgie_ambulatoire/Restitutions/Chirurgie_Ambulatoire_Aspects_tarifaires_DrMiche-leBrami_colloque_chirurgie_ambulatoire_15122011_arspaca.pdf

2. Difference in tariff of at least 25% from the full hospitalisation tariff.

For some GHM roots with J codes but non identical populations and with a low mean LOS (< 3 days), the bundle concept has been introduced in order that the difference in tariff is less: the difference in tariffs between J and level 1 was therefore reduced in the 2012 tariff process for these GHM to a maximum of 25% (14.8% of day stays).

3. Difference in tariff of over 25% from the full hospitalisation tariff

Some stays are classified in the GHM roots with a J code although the day activity is different from the activity delivered in full hospitalisation (different procedures) and the level 1 mean LOS is therefore over four days. In this situation the difference in tariff between day surgery and conventional surgery is over 25% (sometimes far greater).

The same applies for stays classified into the GHM roots which do not have a J code and which have a mean LOS still of over four days. In day surgery a large reduction is then applied (> 25%) which is proportional to the length of stay.

This activity proportionally represents approximately 8.5% of day care stays.

The aim of this differential tariff setting with a large disincentive reduction (over 25%) is:

- to avoid premature discharges;
- to tariff short and long stays which are appropriate for the costs borne by the hospital.

In addition, all of the day care stays with a GHM root and J code at present attract a tariff at least equivalent to the ENCC cost.

► Benefit and limitations of same tariff setting

The same tariff setting has the advantage of sending a strong "price signal[65]" to the parties concerned. It also has some limitations related to the way it is calculated. These details are examined in succession in the following sub-sections.

An evolving system which helps to send out a strong price signal in favour of day surgery

The day surgery tariff was initially (when T2A was introduced in 2004) far lower (50%) compared with the conventional surgery tariff which was a counter-incentive to carrying out day surgery. This counter-incentive has been gradually removed or reduced by:

- introduction of identical tariffs from 2009 for a list of 18 J code GHM roots extended to 39 GHM roots in 2012 representing more than three quarters of day surgery activity currently carried out in France.
- for GHM roots not subject to the same tariffs, the bundle concept was increased to 66% of the tariff and then to 75% in 2012 for the GHM roots with a level 1 severity mean LOS of less than three days.

This tariff mechanism and particularly its associated price signal is believed to have contributed to developing this activity for the GHMs in question which has grown faster than the other GHMs.

According to ATIH, whilst the overall day surgery rate has increased from 32.7% in 2007 to 39.5% in 2011, i.e. a 6.8 percentage point increase over the period, the figure has increased from 60.4% in 2007 to 78.2% in 2011 for the 18 single tariff GHM roots, i.e. an increase of 17.8 percentage points (4, 6).

[65] The term "price signal" is used here in economic theory terms. In reality these are tariffs administered by the governing body and therefore an administrative price and not a market price.

In any event, it is not possible to attribute this result purely to the tariff incentivisation for several reasons:

- the measure coincided with the introduction of other incentive mechanisms (SROS 3, CNAMTS-URCAM objective contracts, ARH-DHOS contract, agreed first with French National Health Insurance) (3) for the same procedures making it impossible to calculate the proportions attributable to each mechanism;
- the measure also coincided with other regulatory measures such as tariff reduction for all surgery and "within sector" tariff convergence.[66] In 2010, a counter-incentive which had been proposed for day surgery was identified and was due to the introduction of targeted convergence for some GHMs in the public sector and through the application of ENCC in the private sector (64).
- there is an increasing trend towards day surgery activity due to changes in technologies and professional practices (in anaesthesia and in the use of less invasive technical procedures);
- the extension in the number of same tariff GHM roots is recent (2012) and it was not possible to measure their effects at the date this report was written.

In addition, the tariff system has undergone major changes over a short period of time and is constantly evolving (33), both in terms of the envelope of surgical procedures involved and the method used to calculate tariffs. This led IGAS (31) to confirm that the tariff incentive process played a role in the increase of day surgery in the centres which it visited (two private, two ESPIC, one CLCC (cancer centre), three CH (general hospital), one CHR (regional hospital) and four CHU (university hospital)), although these potential effects are not complete as in the hospitals only the DIM doctors were actually able to record them. DREES also found the same in 2011 for four hospitals (65).

The method for same tariff calculation is drifting from the initial principle of tariff neutrality

According to IGAS (31), tariffs are said to be "neutral" when they reproduce the ranking of care in terms of average production costs between the different GHS,[67] the GHS being calculated from national cost studies carried out by ATIH (33). The concept of neutrality does not mean that there is no incentive in the tariff rule in place,[68] but that the tariffs remain closely related to measured costs.

For surgery, the principle of neutrality applied considering each day surgery and conventional surgery GHM root in isolation would assume tariffs are based on observed costs for each procedure and would therefore be lower for J code GHMs which have lower costs calculated in the ENCC (cf. figure 2).

In order to set up same tariffs the two costs are merged (the costs of the J code GHM and severity level 1 GHM roots). This then produces an average overall cost, which is the result of weighting based on the proportion of day surgery already achieved.

[66] The within-sector convergence process is based on efficiency efforts from the hospitals belonging to the same sector and which have the same operational requirements. This affects both of the two existing tariff scales: one for the public sector and one for the private sector. It led to the introduction of a transition coefficient which in particular enables initially over-funded hospitals not to lose excessive income and to give them the time to adapt to the same productivity requirements as those now imposed on all hospitals in the same sector. This measure was introduced on 1 March 2008 and will finish on 1 March 2012 (63).

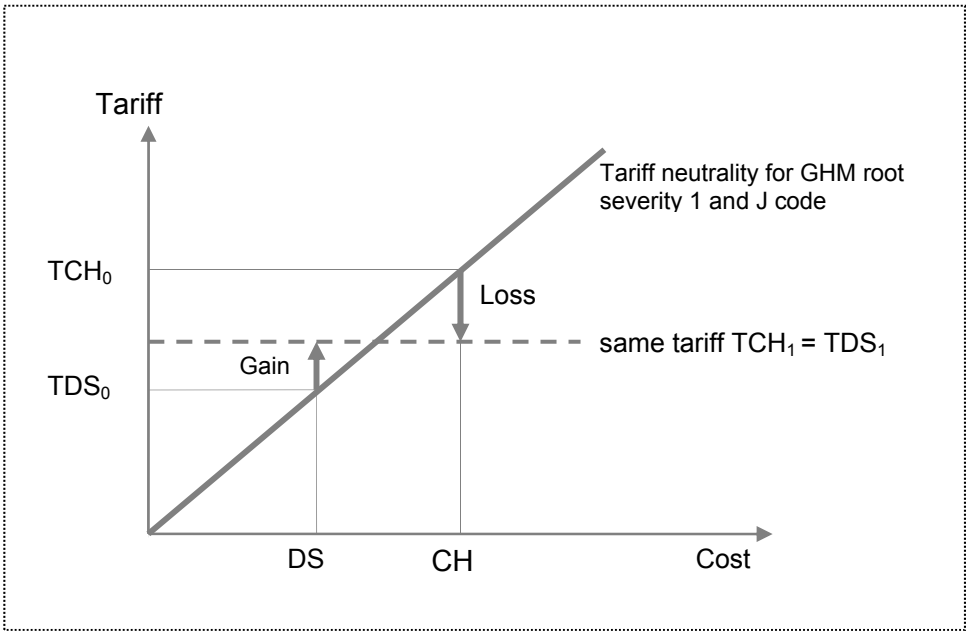
[67] The tariffs may differ from costs for macroeconomic balance reasons due to having to meet ONDAM requirements, although the tariff ranking should be maintained.

[68] As, by definition, a tariff based on the average cost of a group of hospitals encourages all of them to reduce their costs at least to the average in order to financially break even or achieve a positive profit margin (through the yardstick competition principle).

Compared to the initial tariff calculated for each type of surgery taken in isolation, day surgery therefore shows a gain and conventional surgery a loss compared to the observed costs of the procedure (cf. figure 2). This has two consequences:

- Tariff neutrality no longer exists for severity 1 and J code GHS as introducing incentives through the same tariff mechanism specifically implies breaking neutrality at this point;
- Tariff neutrality should continue to be respected for the aggregate mass of each GHS root (J code and severity 1).

Figure 2 : Graphical display of the distancing from the principle of tariff neutrality due to the same tariff mechanism



TDS_0, TCH_0 refer to the day surgery and conventional hospitalisation tariffs respectively for a given procedure at time 0.
DS and CH are the costs of day surgery and conventional hospitalisation in ENCC.
It is assumed that the tariff is equal to the cost registered in ENCC for each procedure. At 0, the day surgery tariff, TDS_0 is therefore equal to its cost (DS), but is lower than the cost of conventional surgery (CH). In 1, using the same tariff principle ($TCH_1 = TDS_1$) and the costs of day surgery (DS) and conventional surgery (CH) unchanged, day surgery gains over its cost whereas conventional surgery loses.

Source: I. Hirtzlin, HAS.

Neutrality can be assessed at three levels:

- for the aggregate tariff for all same tariff surgery GHS (macroscopic approach);
- for the total same tariff for each pair of GHS considered on an aggregated basis;
- for each GHS root (severity 1 and J code stay) considered in isolation.

Macroscopically, according to IGAS (31), the tariff penalties on level 1 GHS were greater in 2010 than the tariff advantage given to day care GHS (cf. table 2). The principle of neutrality was therefore no longer followed, including the situation when the tariff mass is considered and not J and severity 1 tariffs in isolation. In 2011 it was no longer the cost ranking which was used to produce the tariffs but the tariffs from the previous year (2010), indicating according to IGAS that the priority was given to stable tariffs rather than following the principle of tariff neutrality.

Table 2: The impact of changes in incentivisation for day care – 2010

Million €	Overall impact	Increase in day care tariff	Reduction in GHM level 1 tariff
Public sector	- 25	23	- 47
Private sector	- 11	30	- 42

Source: ATIH data, cited by IGAS (31).

IGAS (31) concluded that in the absence of neutral tariffs, the economic signals sent out to the hospitals were at risk of being erroneous. The greater or lesser profitability of activities may simply arise from fixed tariffs and be unrelated to relative costs and not due to greater or lesser relative efficiency[69] of hospitals.

Less incentives while the proportion of day surgery is increasing for a procedure

The same tariff level applies to selected stays regardless of the type of care, in conventional hospitalisation or day surgery. This is calculated in France on the basis of the average cost of severity level 1 surgery and day surgery weighted by the proportion already achieved by day surgery.

The costs of conventional surgery appear to be higher than day surgery in ENCC and the same tariff as currently calculated has the advantage of increasing payment for day surgery, above the costs in ENCC. When the proportion of day surgery increases within the total activity for a GHS, the same tariffs fall. The same tariff is even more favourable for day surgery as this occupies a relatively small market share compared to conventional surgery. This therefore initially encourages the introduction of day surgery but assumes that the more it increases the lower the tariff falls. In a developmental context, the first participating hospitals which already have very considerable day surgery activities therefore initially benefit from a windfall (33) effect as the calculated tariff is similar to the cost of conventional surgery. This windfall effect is then removed by the fall in tariffs as day surgery increases.

This tariff calculation method has two disadvantages:

- for the initial participating hospitals with high day surgery rates the progressive fall in tariffs is not compensated by the fall in production costs from replacing conventional surgery by day surgery activities.
- the hospitals are faced with a mobile tariff scale which could vary from year to year preventing them making investment decisions because of the lack of a medium term view. They could also anticipate a fall in the day surgery tariff which would discourage them from making the necessary investments to re-deploy activities.

A tariff system which does not promote extension of day care to more complex cases

Whilst day surgery should now be considered as first line (3), the procedures which are eligible for this form of care are potentially broader than the list of the 39 same tariff GHS.

As day surgery is considered by learned societies as being the first line method of care (9, 11, 15, 66-68), it could potentially extend to:

- other GHMs which currently have a lower tariff for day surgery than conventional surgery;
- same tariff GHMs but severity levels 2, 3 or even 4.

Same tariffs restrict the tariff incentives to a list of GHM and only severity level 1 and indirectly sends a signal restricting the number of procedures eligible for day surgery, which does not encourage its increase in areas in which it is has been little or not developed. Removal of the lower limits may resolve this difficulty for the GHM roots affected. However, extension of day care to more complex cases also raises the question of the management of comorbidities in the J classification.

[69] The concept of efficiency is limited to the relative cost component found between similar GHS roots at one hospital and another.

Key points

In constructing the activity-based tariff model the length of stay is deemed to be a central indicator of hospital activity. For each stay, a mean length of stay (mean LOS) is calculated together with an interval of variation around this length of stay. If the length of stay is below the lower limit of the interval it is deemed to be an "*outlier*" and generally attracts a specific tariff.

The tariff rules have changed greatly and the information presented in this report concerning tariff rules relating to day surgery in Europe is still incomplete as it is difficult to collate. It emerges from the information obtained by HAS that:

- **the tariff initially adopted in most countries which have introduced activity-based tariffs was generally lower for day surgery as this was classified as a *"short outlier"* and was therefore subject to a fixed or length of stay-proportional payment reduction;**
- **gradually, same tariffs for day surgery and similar conventional surgery procedures have become the main tariff method used in European countries (Austria, Denmark, Spain – Catalonia –, France, Hungary, Italy, United Kingdom, Norway and Portugal). The countries which continue to use a payment reduction for specific procedures have become a minority (Germany, Sweden, Ireland and Poland). In any event, the calculation methods for the same tariffs may be different between countries and HAS has not been able to collate information about these calculation methods;**
- **a few specific tariff models have been adopted in some countries, such as breaking up the tariff into two parts (surgical activity and hotel services) in Austria, the introduction of best practice tariffs in the United Kingdom, tariffs incentivising public-private outsourcing in Switzerland and the over-budget tariff in Norway until 1997. The purposes of these are not necessarily the same as those in France as, for example, in Switzerland and the United Kingdom they relate to reducing waiting lists for surgical procedures.**

France initially set tariffs for day surgery using a specific scale with varying reduced payments depending on the procedure. In addition, day care stays were not isolated from the nomenclatures for those procedures carried out in conventional hospitalisation.

From 2009, the tariff model has changed greatly:

- **specific disease related groups were created (J codes) and similar stays in conventional hospitalisation were classified at a low severity level (code 1 on an increasing four level scale);**
- **this led to a gradual *rapprochement* of the tariffs for the two types of stays for 18 GHM roots in 2009 and then 39 GHM roots in 2012;**
- **for non J code surgery stays but with a low mean length of stay, the lower limit of length of stay (defining an *outlier*) was removed leading to the same tariffs also being introduced for these stays;**
- **for J code stays in non-identical populations the concept of the bundle payment was used. This reduces the differential tariff (deduction) between the two practices to a maximum of 25%;**
- **for stays with or without J codes but a high mean LOS (over four days) differences in tariff of over 25% remained with the purpose of avoiding premature discharges and applying tariffs in order to cover the costs of longer stays.**

Same tariffs help to send a strong price signal in favour of day surgery which probably contributed to accelerating its increase in France, the overall day surgery rate increasing from 32.7% in 2007 to 39.5% in 2011 (+ 6.8 percentage points), but from 60.4% to 78.2% for the 18 same tariff groups of stays (+ 17.8 percentage points).

In any event, this tariff model can still be improved as:

- **its calculation methods diverged from the concept of tariff neutrality;**
- **the tariff incentive is decreasingly strong provided that the day surgery rate increases with a fall in the windfall effect for the initial hospitals which had high day surgery rates;**
- **there is a lack of medium term transparency because of the existence of a mobile fall in tariff scale which may contribute to decreased investment in the practice;**
- **the introduction of a limiting list of same tariff stays introduced an administrative constraint blocking the number of procedures eligible for day surgery. Removal of some lower limits partly helped to reduce this effect although the current tariff model reduces extension of day surgery to level 2, 3 or 4 stays and/or stays with a high mean LOS.**

2.4 Impact of activity-based tariffs on day surgery

The introduction of DRG tariffs or its variants has had consequences on the production choices of hospitals. By reducing their costs below the tariff applied the hospitals achieve a positive profit margin (26) which they can keep to reinvest in their structural costs, pay their shareholders or use to subsidize other activities which are unprofitable/loss-making.

DRG tariffs therefore by their nature lead to the hospital[70] seeking to make productive efficiency gain. There are several different ways of achieving this, which are examined in different studies;[71] those which relate to production efficiency in day surgery have been listed. These are described in part 2.4.1.

Hospitals can also make strategic activity choices by making substitutions between conventional and day surgery. The studies which examined this question are considered in part 2.4.2.

Other studies have examined the consequences of DRG tariffs and public--private partnerships in day surgery activities (part 2.4.3) or patient selection (part 2.4.4).

2.4.1 Optimising the production process

When the tariff applied to day surgery is lower than the tariff for conventional surgery,[72] it would appear to be in the interests of hospitals to continue to carry out conventional surgery. Several authors have shown that this quick calculation may be incorrect as account must be taken of the fact that in day surgery the centres can sometimes admit more than one patient to the same bed in the same day. The level of tariff cannot therefore be assessed without evaluating the actual production conditions for the surgical procedure, taking account of:

- the number of procedures performed during the same day for one bed;
- the length of the surgical procedure;
- combinations of procedures;
- the proportion of cancellations;

[70] Productive efficiency refers to technical efficiency. A company is technically efficient if it is located on the efficiency frontier, i.e. for a given amount of production factors (capital, work etc.), it achieves the highest level of production (*outputs*).

[71] The studies included are only those which relate to disease-based tariffs or activities introduced in France and in other countries.

[72] Which generally applies when countries used a short "*outlier*" deduction mechanism.

- readmissions and stays which are ultimately prolonged;
- the organization of the clinical pathway.

These different aspects are examined in succession in the following subsections.

► Financial break-even and number of procedures performed in the same day

Five recent studies were identified on this subject. These related to five types of procedures (inguinal hernia procedures (69, 70), laparoscopic cholecystectomy (70), glaucoma (71), surgery in the region of the eye (72), and breast surgery (73)).

Most of these studies are not methodologically particularly robust. The HAS methodological support group decided to keep them in the analysis as they illustrate the way in which the parties concerned reason in terms of the tariffs proposed by the statutory authorities. They show that the parties involved in day surgery often think very simplistically and only calculate changes in "income" as a result of shifting from conventional surgery to day surgery, without considering the difference in costs to the hospital of the replacement. The results of these studies are shown below.

Inguinal hernia

Using the example of inguinal hernia for procedures carried out at the *Countess of Chester Hospital* in Great Britain, Skues (69) showed that four day surgery procedures could require the resources for four beds simultaneously, although if the procedures were performed alternatively in the mornings and afternoons, the costs would be lower.

The tariff used in this study for inguinal hernia surgery was £1,370 for conventional hospitalisation compared to £1,015 for day surgery. It therefore appeared in the hospitals' interests to carry out conventional surgery, although if it used the same bed twice during the same day the day surgery costs were higher than conventional surgery, particularly as the additional payment received by the hospital for overnight hospitalisation was set at £300.

In another study, also on inguinal hernia, and carried out in Great-Britain, Zilvetti *et al.* (70) compared the procedure costs by following the clinical pathway of patients in the Milton Keynes hospital department of surgery and the tariff income in 2009-2010. The hospital's income was higher when the type of hospitalisation (day surgery or conventional) was assessed on the day of admission to surgery (the so-called "direct access" model).

The type of anaesthesia used also had an impact on the hospital's income in this study. In a 23-hour hospital admission or day surgery with general anaesthesia the income received was £1,015 compared to costs of £1,141 in conventional hospitalisation and £1,005 for day surgery. On the other hand, if local anaesthesia was carried out in day surgery the cost was only £640 (the difference being due mostly to the pre operative consultation and assessment + £282 and staff costs which were + £100 when general anaesthesia was used).

Laparoscopic cholecystectomy

In the British study by Zilvetti *et al*. (70) the financial balance for laparoscopic cholecystectomy depended on the number of procedures which could be performed, independently of methods used to reduce costs. In order for day surgery to be beneficial, three procedures had to be done per day per operating theatre (income increasing from £2,730 to £4,095 for patients without comorbidities and from £4,262 to £6,393 for patients with comorbidities), which was found to be unrealistic in practice in view of the procedure times required. The authors concluded that taking account of the tariff set by the statutory authorities, some procedures were never financially viable regardless of the type of hospital admission.

The costs for the procedures were not stated in this study which greatly restricts the validity of the conclusions drawn by the authors on the hospitals' break-even point.

Glaucoma

In glaucoma, Muselier *et al.* (71) carried out a French study on 149 patients treated for glaucoma in the Dijon University Hospital surgical unit. This study showed that when the tariff rules which were in force at the time of the study (2008 applying T2A V11) were applied, treating all patients on a day surgery basis would generate an income of €158,352 compared with €259,281, (i.e. 64% more) if all of the patients had a conventional hospital admission over one or two nights, and €647,540 if they were admitted for three nights, i.e. an income of 3.1 times greater. Net funding was therefore poor for day surgery, compared to conventional hospital admission. Net income also appeared to be very different between procedures.[73]

The authors concluded from this that in order for the hospital to "gain financially" when treating patients with day surgery it had to:

- operate on a larger proportion of day surgery patients compared with those managed by conventional hospitalisation;
- take account of the "opportunity cost" of day surgery as it is possible to treat two patients by day surgery in the same day for a single bed.

The financial calculation is not therefore just a simple replacement. Procedure volumes needed to be increased to maintain the same income. The difference in tariff between day surgery and conventional surgery therefore implied that the hospital could easily increase its day surgery activity.

Surgery to the orbitopalpebral region

Souchier *et al.* carried out a retrospective study (72) in the Dijon University ophthalmology department in 2008 for all surgery to the orbitopalpebral region (248 patients hospitalised for eyelid, lacrimal duct and orbital surgery). The authors found that application of the T2A tariff (V11) generated an income of € 232,616 compared to € 417,212 for conventional surgery (one to two days' hospital admission depending on the procedure category), representing a shortfall of €184,596 for the unit.

The authors highlighted that this sum was due to the difference in tariff between the two hospital admission methods. They felt that the difficulty of the operating procedure was not well accounted for in T2A, nor were the combinations of procedures and whether the procedure was uni- or bilateral.

Nevertheless, they pointed out that this figure was only a partial reflection of the situation as day surgery theoretically allowed the same bed or place to be used twice in the same day. They considered that in order to be "profitable" the hospital unit needed to opt more for:

- full hospital admissions;
- promoting simple, financially better paid procedures than complex ones in terms of use of staff, materials and occupation of operating theatres and better bed occupancy optimisation;
- abandoning carrying out bilateral procedures;
- avoid combined procedures;
- if beds were full, opt for more profitable surgery such as cataract surgery or amniotic membrane transplants.

[73] Deep sclerectomy was allocated a value of 1.7 times more for conventional hospitalisation compared with day surgery, and the tariff for combined deep sclerectomy-cataract surgery was set at the same as for cataract surgery alone although trabeculectomy, laser diode cyclodestruction, surgical iridectomies and *shunts* were valued at 2.5 times more for conventional hospitalisation compared with day surgery.

Breast diseases

In breast surgery, Dravet *et al*. (73) carried out a retrospective study of 1,044 case records (423 day surgery hospital admissions and 621 conventional hospital admissions) in the Nantes Cancer Centre (CLCC) over the period 2005 2006. The authors showed that the factors which restricted the use of breast day surgery were mostly geographical distance from the place of residence (227 patients, i.e. 21.7% lived over 100 km away). Opening day surgery units (admitting for less than 12 hours) appeared to penalise this type of practice which requires long multidisciplinary pre-operative preparation.

The authors also pointed out that the lower day surgery compared to conventional hospitalisation GHM tariff was a restricting factor. Treatment of a single patient by conventional hospitalisation (for lumpectomy and functional axillary lymphadenectomy) generated slightly more income (€3,099) than three day surgery patients treated for the same disease (€2,987 only) and that the workload for the teams was higher for day surgery.

The areas proposed for improvement by the authors therefore were extending opening hours of day surgery units, examining ways of managing patients who live far away and introducing real tariff incentives (with payment at least equal to the production costs).

► Impact of the length of the surgical procedure

Two British studies (25, 51) examined the impact of length of procedure on surgical costs.

In one 2008 study on shoulder arthroscopy carried out at the *South West London Elective Orthopaedic Centre* (SWLEOC) (United Kingdom) on two types of procedures (subacromial decompression and arthroscopic repair of the rotator cuff), Hearden (51) found a large difference in the cost of each procedure[74], £1,307 for subacromial decompression and £2,672 for arthroscopic rotator cuff repair, whereas the two procedures fell within the same HRG disease group (£1,780).

The authors also showed that the cost varied greatly depending on length of procedure, each additional hour costing £707. Any delay or overrun time required therefore resulted in a loss against the tariff. The authors concluded that the same tariffs for two procedures were inappropriate, as they covered procedures which were too different in terms of procedure length and resources actually used.

Abbott *et al.* (25) examined the conditions required to improve the efficiency of facilities for a given tariff by reorganising the production process for surgical departments. They felt that efficiency was achieved when all of the planned procedures were actually performed (with no cancellations or overrun from the planned time). Conversely, there were areas of inefficiency due to unused capacity, procedures running over time and last minute cancellations.

The authors therefore developed a simple modelling process using the tariffs in force in the United Kingdom to select day surgery procedures,[75] and compared the margin (income-expenditure) for these procedures. The following hypotheses were used in the model (2008-2009):

- the income was fixed and depended on the price set by the statutory authorities for each procedure (HRG price).
- expenditure was measured as the product of the procedure time and the cost of the operating theatre per minute[76] adding the unit's operational costs which were assumed to be fixed. The national reference costs were used.

The margin is therefore expressed as:

> Tariff – [(operating cost for the unit) + (cost of operating theatre per minute X length of procedure)].

[74] Calculated from data provided by the hospital's finance departments.

[75] Inguinal hernia, cataract, varicose vein, circumcision, cystoscopy, breast biopsy, hydrocoele.

[76] Including equipment, staff and consumables.

The authors demonstrated that using average procedure times and an operating time of eight hours, the profit margin was negative[77] for most procedures (except for cataract) in terms of the tariff in force whereas there were no areas of inefficiency (cancellations, procedure overruns, etc.). On the other hand, some procedures such as cataract remained profitable even if organisational inefficiencies were present.

Abbott *et al.* concluded from this that although carried out entirely efficiently, a number of surgical procedures were not financially profitable for the hospital. The tariff set was therefore inadequate. They highlighted that the gains which could be achieved in the procedure time and the costs of the units were limited. The authors considered that things were happening as if the tariff had been set above a level of optimal practice for the treatment in question. They suggested therefore that future tariffs be calculated based more on a practice benchmark.

They proposed that the tariff be calculated based on the "procedure value", estimating the number of procedures which could reasonably be performed in a given time (e.g. a working day or centre opening hours), using the average length of a procedure.

No studies could be found in France for day surgery examining the consequences of length of procedure. An MEAH (74) report however found, for surgery in general, that changing the planning and organisational process for procedures could allow a public hospital to both improve staff working conditions, offer more operation sessions to surgeons, improve patient management and ultimately achieve improvements in productivity.

► Increasing productive efficiency by combining production factors and procedures carried out

Productive efficiency can be achieved by optimising the number and combination of the different procedures against the available "*inputs*" (human resources and operating theatres) depending on the tariffs received. There have been two studies on these optimisation processes in the United States for independent day surgery centres (cf. part 2.5) (*Ambulatory Surgery Centres* or ASCs) and one Norwegian study. They used the DEA method (*Data Envelopment Analysis*).[78]

- Iyengar and Ozcan (75) assessed the efficiency of an ASC as its capacity to combine multiple production factors with multiple products in a study on 198 ASCs in Pennsylvania in 2006. Efficiency was measured from the ratio between the number of procedures carried out by age[79] and production factors measured from the number of full time staff equivalents and number of operating theatres. The efficiency cut-off was calculated according to the best performance obtained by the ASCs (combining production factors and multi-product productions).

  The study showed that 24.2% (48 out of 198) of the ASCs were at the efficiency cut-off, with a mean efficiency score of 0.6. The average number of operating theatres in the efficient ASCs was 1.35 (standard deviation 1.36) compared to 3.1 (standard deviation 1.41) for the inefficient ASCs (t-test 7.67, $p < 0.01$). The number of full time staff equivalents was 13.2 persons (standard deviation 8.88) compared to 24.02 (standard deviation 13.11) for the inefficient ASCs (t-test 6.48, $p < 0.01$). Efficiency did not increase statistically significantly by age group treated by the ASC, except for those in the 18 - 64 age group (t-test 1.66, $p < 0.05$). In order to become efficient the ASCs had on average to reduce their operating theatres by two and their number of full time equivalent staff by 13, at the same time increasing the number of patients managed in the 18-64 year old age band.

[77] - £347 for hernia, - £2,661 for varicose veins, - £1,654 for circumcision, - £1,950 for cystoscopy, - £1,122 for breast biopsy, - £1,700 for hydrocoele.

[78] A non-parametric method used in economics to estimate production frontiers. It is used to measure productive efficiency in production units.

[79] There were three age bands: 0-17 years old, 18-64 years old and over 64 years old.

- Lewis *et al.* (76) constructed a model to establish the procedures and combinations of procedures which the ASCs could produce as efficiently as possible taking account of tariffs and use of resources which differed depending on the length of procedure, anaesthesia time, technician time and administration time.

  This model was then tested on the 100 most common procedures carried out by the ASCs in 2007 for a set of scenarios compared with the then current situation. These scenarios simulated a 10% increase in volume for each procedure for constant resources or increasing resources by 10%. Three alternative strategies were proposed: maximising reimbursement, minimising the number of complications or a multifactor model.

  The model constructed was used to determine the optimal combinations of procedures for given tariff and volume restrictions. Reducing complications also improved efficiency, all other things being equal.

- In a 2004 study Martinussen (59) examined the impact of more routine use of day surgery on hospital efficiency. The hypothesis tested was that hospitals which carried out a large proportion of day surgery were more efficient than those with a small proportion.

  This was a decision-making model in which the hospitals maximised a utility function, the parameters for which were income (increased resources and/or reduced production costs), number of patients and efforts within the restrictions of budget and structural features of the hospital. The findings were checked against the hospital budget, the proportion of income from attendances without overnight stays, abnormally long lengths of stay, type of facility and proportion of care delivered on an urgent basis. Fifty-one Norwegian hospitals were included in the analysis over the period 1999-2001.

  The definition of efficiency in this study was based on the Pareto Koopmans criterion: "a hospital is technically more efficient when an increase in its production (such as day surgery) requires a fall in at least one other production (for example conventional surgery) or an increase in at least one production factor (input). Efficiency can also be achieved when the fall in a production factor requires an increase in at least one other production factor or a reduction of at least one product" (59). The efficiency improvement indicator was based on the impact of an increase in the proportion of day surgery compared with conventional surgery on the utility function.

  The results of the study revealed that a 1 percentage point increase in day surgery could improve the technical efficiency by 0.17 points ($p < 0.05$). This result may seem quantitatively small, although the authors highlighted that:

  - day surgery rates were very variable (from 20 to 65%) between hospitals;
  - efficiency gains were all the more important as day surgery rates were already relatively high in Norwegian hospitals before the activity-based tariff was introduced.
  - the increase in productive efficiency was particularly high in hospitals which already had high market shares (2.23 points with $p < 0.01$);
  - conversely, budget size[80] (- 0.08 points with $p < 0.01$) and a large proportion of abnormally long stays (- 0.13 points with $p < 0.01$) reduced the productive efficiency gains associated with increasing day surgery.

  One of the main limitations of the study highlighted by the authors was that it only examined efficiency from the hospital perspective and did not consider the patients' costs of earlier returns home.

[80] These hospitals were assumed to have more organisational slack and greater coordination costs, making efficiency gains difficult to achieve.

► Reducing and managing cancellations

In a 2007 study, Mannion *et al.* (26) showed that costs could be reduced by improving planning of procedures, particularly by reducing last minute cancellations or the numbers of cases in which procedures ran over time. A 2005 report in Great Britain from the *Healthcare Commission*[81] (77) found that 45% of operating theatre time was lost because of procedure cancellations (this figure could be as great as 20% in some units), delays or excessively long procedures. On average day surgery operating theatres were only used for 16 hours per week. Optimising this area would have allowed 74,000 additional procedures to be performed.

► Economic impact of hospital readmissions and extended stays

Imasogie and Chung (78) summarised studies published up to 2001 on the economic impact of hospital readmissions after a day surgery procedure.

Based on six studies between 1989 and 1996 (two prospective and four retrospective) on 6,000 to 90,234 patients, the readmission rate or rate of stays converted into a conventional hospital admission was between 0.28 and 1.42% of patients.

As the cost of day surgery was 20 to 50% lower than the conventional hospital admission cost the authors showed that day surgery was still less expensive than conventional hospital surgery, even taking account of readmissions. Educating patients and health professionals could, in the authors' opinion, reduce these readmissions.

Imasogie and Chung (79) also studied the economic consequences of extending patient stays. Three prospective studies (on 1,088, 3,152 and 16,411 patients respectively) published between 1998 and 2001 were found. According to the authors, delayed discharge varied depending on the study (two to six hours). Reducing the length of hospital stay could reduce costs as it would enable the staff to patient ratios to be reduced. The magnitude of this reduction in cost, however, remained unknown.

► Recommendations to optimise DSU organisation and the clinical pathway

Smith *et al.* (77) proposed multifaceted solutions to optimise the day surgery process and achieve the objectives set in the activity-based payment system from published data and NHS and *British Association of Day Surgery* publications. For the DSU this involved:

- in terms of overall organisation:
  - minimising cases which were ultimately ineligible for day surgery and which required an overnight hospital stay, in particular ensuring that patients were eligible for this type of procedure during the pre operative assessment phase,
  - grouping together procedure lists from different operating theatres,
  - maximising the times for which the facilities and operating theatres were used,
  - minimising cancellations, and examining for the causes of delays and differences in length between procedures,
  - planning patients for long procedures for the start of the operation list,
  - reviewing the organisation of the hospital (converting conventional beds into day surgery beds, increasing the flexibility in organising surgeons' working time etc.),
  - keeping the waiting list accessible in order that staff carrying out the planning and those in the day surgery unit work together and can plan procedures in free planning gaps;
- in terms of staff:
  - appointing a contact person (preferably the anaesthetist responsible for organising the patient care in the DSU),

[81] *Healthcare Commission. Acute hospital portfolio review, Day surgery July* 2005.

- ensuring that there were sufficient numbers of appropriately qualified staff to carry out the planned procedures;
- promoting multidisciplinary team working,
- pre-empting situations as soon as possible if a staff member was absent;

- in terms of the patient:
  - telephoning patients the day before the hospital admission to confirm they were attending or reorganise,
  - setting up a rapid access list for patients able to come if another patient is cancelled,
  - using anaesthetic techniques which allow rapid awakening,
  - using medicinal products (prevention and reduction of nausea) and new techniques involving rapid patient recovery after the procedure, reducing the time patients spend in the recovery room after the procedure (*fast-tracking*).

According to the author, in order to maximise efficiency, the day surgery should be performed in a separate specifically dedicated unit, both in terms of operating theatres, operating lists, recovery rooms and admission facilities and management of waiting lists.

2.4.2 On replacing conventional surgery with day surgery

Only two studies (one British (80) and one French (65)) examined the impact of DRG or equivalent tariffs on choice of activity (day surgery compared with conventional hospital admission).

► British study

As the cost to the hospital is lower for day surgery than conventional surgery, the same tariff is a powerful incentive to increase day surgery and achieve productive efficiency gains.

The impact of the same tariffs on choice of activity was studied in Great Britain by Farrar *et al.* (80) over the period 2003/2004 (same tariff applied to 15 HRGs) and 2005/2006 (same tariff for 33 HRGs), on the basis that HRG same tariffs[82] were introduced in England and Scotland in 2002. The methodology involved comparing changes in day surgery activity in some categories of hospitals (mostly foundation trusts) with a "control group" HRG tariff which did not have this new funding mechanism (hospitals which were neither foundation trusts nor Scottish hospitals).

For the 19,096 cases for the two periods the proportion of day care cases increased significantly faster (from 0.4 to 1.5 percentage points; $p < 0.01$) in the HRG funded hospitals, confirming the hypothesis that same tariffs led to an increase in day care practices.[83]

The study pointed out that the tariff pressures applied to foundation trusts may have been less than for other hospitals as the tariff which was calculated from the average cost of all of this category of hospital was higher than for other categories of hospital.

► French study

DREES (65) showed in a qualitative French study involving monographs on four hospitals that tariff incentives (based mostly on same tariffs between day surgery and conventional surgery) set up to promote day surgery were not well understood by the parties involved:

- only the management of one university hospital gave an accurate description of the incentives. In the other hospitals, the management was particularly aware of the tone of the debate in the public authorities in favour of day surgery, which increased the awareness of the medical profession;
- the DIM doctor could be a driving force, also being aware of the financial benefit of day care compared with conventional hospitalisation although the parcelling up of the various versions of the classifications and amendments to tariff made it difficult to understand the tariff rules;

[82] *Healthcare Resource Groups*.

[83] The study does not report the proportion of day surgery compared with other procedures.

- practitioners and managers did not understand the tariffs;
- some chairmen of medical executive committees (MEC), who did not know the details of changes in tariffs were aware of a financial challenge in developing day surgery although their awareness was rather blurred.

The incentive policy was considered to be very poorly transparent in terms of the details as they related to the people involved, as the tariff scales changed considerably between 2009 and 2011 with an addition in 2010, a counter-incentive to day surgery.[84] In addition and as for other activities, the hospital's day surgery strategy was built over several years and there was a degree of inertia in the hospitals responding to tariff incentives.

Tariff incentives therefore did not appear to have an impact on behaviours and decisions to organise activities around day care.

According to the study's authors (64), the incentive was due more to the general mechanics of T2A, which brought about an increase in activity, rather than in the subtleties of changes in the GHS tariffs concerned.

2.4.3 On public-private partnership

The impact of DRG tariffs or their equivalents may differ depending on the status of the organisation (public, private not for profit or private for profit) to which they apply. Xirasagar and Lin (81) postulated that private for profit centres sought to maximise their revenue and control their costs. They were therefore more likely to respond to the financial incentives introduced and to increase day surgery rates. Setting tariffs for the two types of care at a similar level would therefore result in promoting day surgery in the private for profit sector but not in the public sector which is less sensitive to financial incentives, as maximising profit margin is not one of its objectives.

The authors of a retrospective study carried out in Taiwan using the National Health Insurance database for 2001 extracted data on procedures for femoral and inguinal hernias (29,699 cases) and cataract operations (50,626 cases). They carried out a logistic regression analysis to examine the association between the likelihood of admission for day surgery in public and private for profit centres taking account of the competitive situation[85] and size of the centre, and adjusting for clinical complications, patient characteristics and medical demographics.

The study showed that large public university hospitals (> 250 beds) tended to admit more patients for conventional surgery than private for profit hospitals for patients undergoing surgery for hernia (OR = 1.9 and 2.6, depending on whether the hospital was in a greater or lesser competitive environment respectively) and patients undergoing surgery for cataract (OR = 5.0 and 5.4 in a greater or lesser competitive environment respectively). Similar results were found for public district hospitals (OR = 1.2 and 3.9 for hernia and 4.9 and 2.7 for cataract).

The authors concluded that public hospitals were more likely to admit patients through conventional hospitalisation than private for profit hospitals. Differences were found depending on disease, types of public hospital (university hospitals or district hospitals) and level of competition.

2.4.4 On patient selection

Martinussen and Midttun (58) postulated in a Norwegian study that same tariffs could possibly lead hospitals to select more patients who were eligible for day surgery and who were more profitable, to the detriment of those who would need to stay overnight in the hospital. This would have the effect of increasing the waiting time for the most severely ill patients. In this context, patient selection could be likened to risk selection by the health insurance or hospital in order to maximise income.

[84] Reduction in tariff in the public sector for GHS subject to "targeted convergence", and a reduction in the private sector by applying the ENCC, the existence of lower limits.

[85] Measured by the Herfindahl-Hirschman index (HHI) which is a market concentration index. This is obtained by adding the square of the market shares (generally multiplied by 100) for all companies in the sector in question over the area being studied. Competition was also examined by studying patient flow between regions.

Martinussen and Midttun (58) endeavoured to test this hypothesis from a Norwegian national file of 1.2 million patients who underwent day surgery between 1999 and 2005 and were classified into 151 different DRGs. The authors chose 16 DRGs representing at least 2% of all day surgery performed over the period for the analysis. They sought to determine whether the patient waiting time correlated statistically[86] with case severity measured by length of stay.[87] A significant correlation was found between case severity and length of stay for 10 of the 16 DRGs studied ($p < 0.01$). The DRGs included orthopaedic procedures and also ophthalmology, tonsillectomy, vein ligation and percutaneous cardiovascular procedures. The results obtained by the authors need however to be interpreted with caution as:

- no correlation was found for six DRGs;
- the procedures which were potentially eligible for day surgery involved patients with a low severity level;
- the postulate that selection increased after reform of the same tariff system in 2002 was not confirmed as patient selection remained stable over the period of the study (1999-2005). The post 2002 period also coincided with increased hospital funding which could have reduced waiting lists.

According to Hurst (82), the reverse logic may apply in several OECD countries. The waiting time may in fact be higher for day surgery, which is deemed to be lower priority as the procedures are less extensive and less urgent. It might therefore be expected that waiting times for day surgery were longer than for patients admitted for conventional surgery. Where, however, there are centres dedicated to this type of surgery, the waiting time may be shorter as patients eligible for this type of procedure are not squeezed out by admissions for conventional surgery (82).

2.4.5 Maintaining the range of practices

In 2011, Appleby *et al*. (83) undertook an examination for the *King's Fund* into the reasons for the persistent differences in practices seen between regions in Great Britain for 36 surgical procedures, 25 of which could be carried out as day surgery from a list of procedures meeting the safety criteria and deemed to be cost effective by the *Audit Commission* in 2001.

Day surgery rates varied between 67 and 87% in 2009-2010, according to the PCT (*Primary Care Trusts*)[88] (coefficient of variation [CV] 0.05). Per procedure results were more contrasting, some procedures having a rate of between 88 and 100% day surgery in all of the PCTs (cataract, carpal tunnel) and others being far more widely dispersed (dispersion was widest for tonsillectomy (40,000 procedures, CV 0.78) and laparoscopic cholecystectomy (10,000 interventions, CV 0.61).

The authors found a lack of consensus or evidence for six procedures being carried out because of clinical uncertainty and a lack of guidelines as being the main factor to explain the differences.

For those procedures with least agreement, the authors also found a correlation between admissions and the socio-economic status of the population in the geographical area in question. The poorest patients had more surgical procedures lacking consensus (abdominal hysterectomy rho[89] = 0.3*, myringotomy rho = 0.16*, tonsillectomy rho = 0.26*, spinal cord procedures rho = - 0.16, hysteroscopy rho = - 0.03, vaginal hysterectomy rho = 0.08). The authors interpreted these differences as being due to the fact that populations of higher socio-economic status may be more aware of the risks and choose not to undergo surgery.

Although it did not specifically involve an analysis of tariffs, the analysis by Appleby *et al.* (83) showed that even when tariff conditions were the same throughout the country, day surgery rates could vary between regions. The authors suggested that the choice of procedure type depended on the presence or absence of consensus about the most appropriate management type.

[86] By the ordinary least squares method

[87] The stays for the 16 DRGs selected were both for day surgery and conventional surgery (length of stay including at least one night).

[88] Primary care trusts are equivalent to the French National Health Insurance primary care funds, operating locally to fund both day and hospital care.

[89] Spearman's rank correlation coefficient ranging from - 1 to + 1. A negative value indicates a negative correlation between the two variables and a positive value indicates a positive correlation. Figures with an * are those with a significant correlation, $p < 0.05$.

Summary - Key points:

Activity-based tariffs applied to day surgery should seek to achieve productive efficiency gains by hospitals.

The literature analysis shows that surgery units are theoretically liable to adjust their organisation and operation by:

- **changing the number of procedures performed in the same day;**
- **preferring a specific method of anaesthesia;**
- **using less invasive surgical techniques;**
- **working on the length of the care episode;**
- **changing the combination of factors and procedures;**
- **reducing cancellations, readmissions and extended stays;**
- **optimising the patient's clinical pathway.**

The studies contained in the literature allow the consequences of these medical and organisational choices to be assessed, although only on a relatively small number of procedures (inguinal hernia surgery, laparoscopic cholecystectomy, glaucoma surgery, surgery to the orbitopalpebral region, breast surgery and shoulder arthroscopy). They use very different methods and are therefore not directly comparable with each other.

Overall, in terms of the financial balance they show that:

- **surgery units often consider the concept of "profitability" of day care activities very much only in part, only looking at the "income" component, without taking account of the related production costs;**
- **the financial break-even point for a health care facility for day surgery, particularly compared to conventional surgery, cannot be directly assessed simply by comparing the tariff for one procedure with its mean unit cost;**
- **this break-even point for day surgery can only be assessed by examining its organisation (i.e. number of procedures per day, management of cancellations, opening hours), types of protocols used (at local, locoregional or general anaesthesia, length of the surgical procedure), the quality of care provided (minimising complications and readmissions) at the same time taking account of the number of production factors used (staff numbers, number of operating theatres) and the combination of procedures (type of procedures given preference within the same speciality, or by age band).**

In terms of assessing productive efficiency:

- **one British study has highlighted that a procedure may be inherently financially loss-making regardless of the efficiency gains achieved, because the tariff set by the regulator is too low;**
- **two American studies on independent ambulatory surgery centres highlighted that some major changes to staff, number of operating theatres and combinations of procedures were occasionally required for hospitals to be located on their productive efficiency boundary;**
- **the choice of day surgery against conventional surgery in a Norwegian study helped to improve the hospital's efficiency;**
- **the efficiency gains were also occasionally due to an increase in the unit's**

activity, implying that there is a "demand reservoir" allowing the activity level to be increased. This demand reservoir depends on factors outside of the hospital, particularly levels of local competition and the health of the populations living in the catchment area, which should not be too far from the hospital as the centre opening hours are limited to 12 hours.

In parallel, activity-based tariffs may impact on choices made in the sector, particularly:

- ***the increase in day surgery*: only two studies examined the impact of tariff incentives on increase in day surgery. However, whereas the methodologically robust British study reached a positive conclusion, the French study was more reserved because of a poor understanding of tariff rules by the people involved. This study was poorly representative as it was only based on four hospitals;**

- ***public-private partnerships in day care activities*: only one study carried out in Taiwan showed that private hospitals were more sensitive to financial incentives because of their for profit status and were therefore more inclined to increase day surgery than public hospitals. This finding remained valid after taking account of the competitive environment and size of the hospitals, and after adjusting for patient characteristics. The study, however, did not measure the impact of a change in tariff but only activity-sharing within the same tariff system;**

- ***on patient selection and waiting times for a procedure*: a Norwegian study postulated that selection of patients eligible for day care was increased (and that the waiting time increased for the most severely ill cases) after a same tariff system was introduced. An analysis of the data did not confirm this hypothesis;**

- ***on convergence of day surgery rates in the country*: one British study showed that despite introducing consistent tariff incentives throughout the country, day surgery rates remained very different between regions. The authors suggested that the choice of a type of procedure depended on the presence or absence of professional consensus on the most appropriate type of care.**

2.5 Independent day surgery centres

In order to accelerate the increase in day surgery, some countries (the United States and United Kingdom in particular) have chosen to rely on the creation of new care organisations and have therefore promoted the setting up of "independent ambulatory surgery centres" which are usually geographically and administratively separate from the hospitals (cf. 2.5.1 on different methods of organisation for independent centres).

The operational bases and tariff principles for these centres are shown below, distinguishing in succession the American "*Ambulatory Surgery Centres*" (ASCs) (part 2.5.2) and the British "*Independent Sector Treatment Centres*" (ISTCs) (part 2.5.3), and then describing the independent centres in Germany (part 2.5.4) and in France (part 2.5.5).

2.5.1 Organisational bases for day surgery

Four day surgery organisational models are typically described in the literature (9, 11, 15, 84, 85).

- Integrated centres

Integrated centres have dedicated reception and stay premises for day care but at the same time are located in a conventional hospitalisation unit. The operating theatre is joint to conventional and day surgery activities (9, 11, 15, 84, 85).

The integrated centres are the oldest model and have represented almost all of the French centres for 20 years. They have the advantage of being easy to run in a pre-existing hospital. Their disadvantage is that they often act as a brake to increases in day surgery where the culture of conventional management still predominates (11, 84).

- Independently operating centres

The independent centres have dedicated reception and stay premises with operating theatres dedicated to day surgery and are located in the conventional theatre block (9, 11, 15, 84, 85).

- **Satellite Centres**

Satellite centres have all of the human and material resources required for day surgery. The operating theatre is dedicated to day surgery and is located outside of the conventional operating theatre block, but is still inside the boundaries of the health care facility with overnight residential facilities (9, 11, 15, 84, 85).

- Independent centres

The independent centres have all of the human and material resources required for day surgery and are completely separate from conventional health care facilities (9, 11, 15, 84, 85). The independent centres are outside of the boundaries of a hospital with overnight residential facilities.

2.5.2 Independent centres in the United States

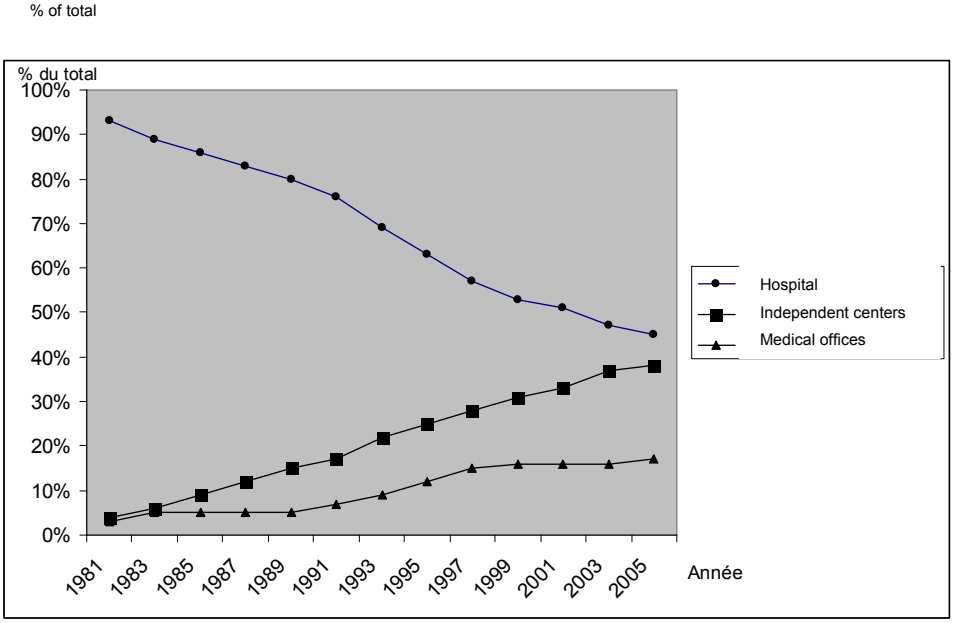
The United States is specific for three reasons as:

- the country is considered to be the leader in the development of day surgery (cf. introduction to the report);
- in the United States the activity is carried out in three types of centres (hospitals, independent ambulatory surgery centres and "in office" of practitioners);
- the definition of day care surgery in the databases examined is more extensive than the definition in the French situation as procedures resulting in a hospital admission for less than 24 hours are deemed to be ambulatory (day care) (86).

Until the 1970s all surgical activities were carried out in hospital facilities (*Hospital Outpatient Surgery Unit*) as part of a conventional hospital admission.

Day surgery activity then increased considerably from the early 1980s in hospital centres but particularly in independent "*Ambulatory Surgery Centres*" and in "*Office based*" or "*In office procedures*". In 2008, a total of 47% of procedures was performed in hospitals compared with 37% in the ASCs and 16% in office (87) (cf. figure 3).

Figure 3: Change in day-case surgery by facility type in the United States



Source: Verispan, Diagnostic Imaging Center Profiling Solution, 2004 in American Hospital Association, TrendWatch Chartbook 2008 (88).

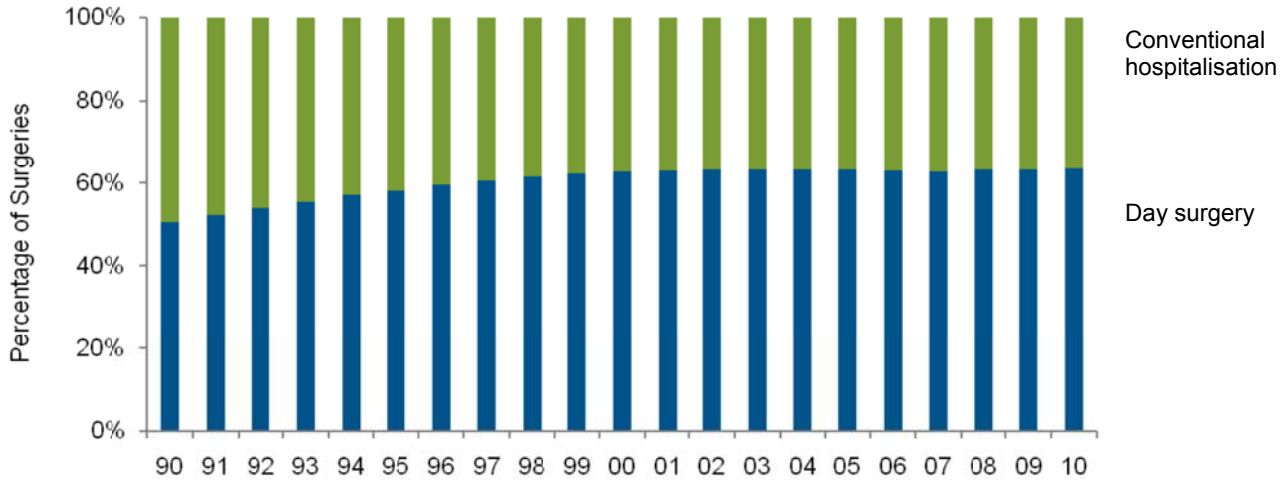
*2005 *values are estimated based upon current trends*.

The first independent centre (*Ambulatory Surgery Center*) was opened in 1970 (89). Since then, the ASC offering has increased considerably. There were 336 ASCs registered in *Medicare* in 1985, 1,197 in 1990 (90) and 5,876 in 2008 (87), including 5,174 centres certified by *Medicare* (89). The number of ASCs has increased by approximately 200 annually since 1996. In 2008, 47% of procedures were performed in hospitals compared with 37% in the ASCs and 16% in office (87).

In parallel, the proportion of day surgery in hospitals has increased gradually. Sixty-three per cent (63.5%) of all surgical procedures performed in community hospitals were carried out on a day case basis in 2010[90] (cf. figure 4).

[90] According to the *TrendWatch Chartbook* 2012 (*supplementary data tables, utilization and volume*), 17.36 million day surgical procedures were carried out compared with only 9.95 million procedures involving full hospitalisation, with an average length of stay of 5.4 days. http://www.aha.org/research/reports/tw/chartbook/index.shtml

Figure 4: Change in the percentage of day case surgery compared with conventional surgery in community hospitals between 1990 and 2010 in the United States.



Source: *Avalere Health analysis of American Hospital Association Annual Survey data, 2010, for community hospitals*.

► Definition of *Ambulatory Surgery Centres*

According to *Medicare*[91], an independent *Ambulatory Surgery Centre*, or ASC, is a unit separate from the hospital facility which only provides surgical services to patients who do not require hospital admission and who are not expected to have an overnight stay.[92]

To receive *Medicare* funding, the ASCs need to meet this definition, be certified and sign an agreement with a *Medicare* or *Medicaid* service centre (CMS[93]) (86).

The ASCs are independent from a hospital facility and only offer day surgery procedures[94] (93). Ninety per cent of these are owned by at least one doctor and 95% are for profit (22).

► Rationale

The arguments put forward by *Medicare* supporting the development of the ASCs were (22) :

- For patients:
  - improved accessibility because of their closer location to the patient's homes than the hospitals.
  - shorter waiting times and easier to plan procedures,
  - lower tariffs for the ASCs compared to the hospitals giving patients a lower co-payment;

[91] Federal American insurance for people over 65 years old: *Medicare* is the main funder of care in the United States, with 20.2% of the expenditure (although 29% of the hospital expenditure). The structure of *Medicare*'s expenditure compared with other American Health Insurance programmes is different, as *Medicare* includes a more elderly and sicker population than the general population and does not cover long stay care (91, 92).

[92] *Medicare Payment Advisory Commission Report to the Congress. Medicare payment policy*. Washington: MEDPAC; 2012., http://www.medpac.gov/documents/Mar12_EntireReport.pdf

[93] *Centres for Medicare and Medicaid Services*: Cover in the *Medicaid* programme involves the poorest Americans.

[94] The hospital admission period is under 24 hours. Nevertheless, some States have allowed the ASCs to take patients for a period over 24 hours so they can be treated for more complex procedures.

- For doctors:
  - better control of their working environment with specialised staff and dedicated premises (22),
  - higher income as surgeons working in the ASCs could perform more procedures in a shorter time than in hospitals. They could therefore increase their activities and receive higher fees, also however with benefits to the ASCs.

► Operators

The ASC "market" is very fragmented (over 40 operators have been identified) (89). Companies exist which are held by large public or private bodies (such as *United Surgical Partners International* or *Surgical Care Affiliates* which own 169 and 130 centres respectively). These large groups represent 1,300 centres, i.e. 22.2% of operators, the remaining being held by small private independent operators.

► Type of study

Although potentially diversified as *Medicare* financially covers 3,400 surgical procedures performed by the ASCs (compared to only 200 in 1982) (22), their activities are highly specialised around a relatively limited number of procedures. 71.7% of the ASCs activity is concentrated on 20 surgical procedures, 20.6% of which only involve cataract surgery[95] (86).

► Geographical distribution

Geographically, the ASCs are highly concentrated. In 2008, five American States (California, Florida, Maryland, Texas and Georgia) had 40% of the ASCs activity and 27% of the *Medicare* beneficiaries (22). In 2008, 88% of ASCs were located in urban areas.

► Operating conditions

In order to receive *Medicare* payments, the ASCs need to meet certain criteria (22):

- providing an anaesthesia service;
- having a quality assessment procedure;
- having operating theatres and recovery rooms;
- having medical staff;
- having nursing care services.

► Factors explaining the increase

The ASCs have increased greatly since 1980 because of overall favourable legislation and tariff rules. This increase has substantially eroded the proportion of day surgery carried out by hospital facilities to the benefit of medical offices and ASCs.

The *Medicare Payment Advisory Commission* (22) assessed the factors explaining the volume growth of services offered by the ASCs between 2003 and 2009. It found:

- that between 2003 and 2008, the number of surgical services increased by 9.1% in the ASCs whereas the surgical services from hospitals fell by 0.1%, suggesting that the market growth dynamics was exclusively in favour of the ASCs. It was difficult however to determine whether the increase in ASC activity was really to the detriment of hospitals (which saw an increase in non-surgical activities of + 4% over the period) or rather to the offices;
- that with an activity growth rate of 10.5% between 2007 and 2008, 4.9 percentage points were due to the offering of new services, the 5.6 remaining percentage points being due to the strict volume effect (i.e. the increase in services from *Medicare* beneficiaries). The ASCs extended the number of procedures and services offered because of technological advances which enabled them to perform more day case surgical procedures;

[95] Upper gastrointestinal endoscopy with biopsy represented 7.9% of activity followed by colonoscopy with biopsy (6.1%) and diagnostic colonoscopy (5.2%).

- that the *Medicare* programme was probably not the only source of this growth as the income received by *Medicare* from the ASCs only represented approximately 20% of their surgery (22).

► Increasing costs of the ASCs for *Medicare*

The Federal *Medicare* programme began to pay for surgical procedures performed in the ASCs from 1982. The benefit to the funder (insurer or patient) was that surgical procedures were carried out for a lower tariff than in the conventional hospital system.

Nevertheless, the total cost of the ASCs to *Medicare* increased greatly (cf. table 3), from $1.2 billion in 1999 to $3.4 billion in 2010, i.e. an increase in 183% over eleven years despite a slight slowing in growth in recent years (3.4% in 2008 and 2.1% in 2009), although with a further increase in growth in 2010 (6.2%) (91), showing the limitations of reforming the funding methods introduced in 2008 (cf. *below*, tariff scales).

These dynamics should nevertheless be compared with those of the *Medicare* expenditure for day case surgery costs in the hospital situation. These costs increased from $17.7 billion in 2001 to $34.9 billion in 2008, i.e. 97.5% over the period.

Table 3. Change in *Medicare* payments and increase in the ASCs in the United States between 1999 and 2010

	1999	2000	2001	2002	2003	2004	2005	2006	2008	2009	2010
Medicare Payments ($ billion)	1.2	1.4	1.6	1.9	2.2	2.5	2.7	2.9	3.1	3.2	3.4
Growth %*		16.6	14.3	18.8	15.8	13.6	8	7.4	3.4	2.1	6.2
Cumulative % since 1999		**17**	**33**	**58**	**83**	**108**	**133**	**142**	**158**	**167**	**183**
No. of ASCs certified by *Medicare*	2,786	3,028	3,371	3,597	3,887	4,136	4,506	4,707	5,151	5,260	5,316
Growth %*		8.7	11.3	6.7	8.1	8.7	6.4	9.0	16	2	1.1
Cumulative % since 1999		**9**	**21**	**29**	**40**	**48**	**62**	**69**	**85**	**89**	**91**

* value compared with the previous year; Source: Manchikanti 2012 (92).

Table 4. Increase in expenditure for procedures carried out in hospital facilities (prospective payments).

	2001	2002	2003	2004	2005	2006	2007	2008
Payments ($ billion)	17.7	19.6	21.2	23.9	26.6	29.4	31.6	34.9
Growth %*		10.5	8.2	12.8	11.3	10.4	7.8	10.5
% since 2001		**10.5**	**19.5**	**34.8**	**50.1**	**65.7**	**78.7**	**97.5**

Source: Manchikanti 2011 (92).

► The tariff scales

The tariffs for day surgery procedures in the United States differ depending on the care centre which carries them out. Three different tariff grids (89) are used by the *Centres for Medicare and Medicaid Services* (CMS)[96] for day surgery procedures.

[96] These are the federal American insurance tariffs for people over 65 years old and the poor. Private insurance usually applies to these reference tariffs and change the co-payments or add additional services.

In office procedures

An activity based tariff applies using the MPFS (*Medicare Physician Fee Schedule*) scale. This tariff consists of three parts (94):

- remuneration for the doctor's work;
- a payment intended to cover professional expenditure;
- a payment for expenditure to cover costs due to professional errors.

These components are expressed as relative weights and are then multiplied by a conversion coefficient, to obtain a sum in dollars. There is:

> An MPFS payment for a procedure in $ = (work intensity coefficient + professional costs intensity coefficient + coefficient for professional errors) X conversion coefficient .

In hospitals

Day surgery is treated specifically by applying the prospective payment scale used for procedures carried out outside of conventional hospital admission, the OPPS (*Outpatient Prospective Payment System*). This classification uses a list of 201 APC codes (*Ambulatory Payment Classification*). [97]

The *Medicare* tariff is the full cost. It consists of:

- nursing care and technical services;
- use of equipment and premises where the surgery is carried out;
- some medicines and laboratory investigations for which a separate payment is not permitted *via* OPPS;
- medical and surgical consumables which are not paid for separately in OPPS;
- equipment;
- clothing;
- implantable devices and prostheses and their ancillary parts if they do not appear as a separate payment in OPPS;
- other medical devices (splints, etc.);
- radiology services for which an OPPS payment is not approved;
- registration, administration and accommodation costs;
- the materials and equipment required to administer anaesthesia;
- supervision of the anaesthetist by the surgeon.

Ancillary services may be invoiced in addition: implantable devices, medicines, laboratory investigations and radiology services.

The relative weight of the cost of each APC is established using the accounting codes (direct and indirect) reported annually by the *Medicare* facilities. The median cost for each APC for all hospitals is then calculated and converted into a relative weighted scale, limited by the fact that the median cost of the highest APC cannot be more than twice the median cost of the lowest APC ("*two times rule*").

The weight of the APC is then multiplied by a fixed conversion tariff of $ US 70.12 in 2012. The tariff is updated annually taking account of the index of goods and services purchased by the hospital in which salaries and social services account for 60%. The payment is adjusted by a geographical coefficient. The hospitals can also receive additional payments for "*outliers*".

[97] The APC scale is also used for procedures carried out by ASCs which are not liable to be carried out in office (cf. *below*).

In the ASCs

At the beginning of the 2000s, the tariffs for day surgery carried out in ASC were higher than for those carried out in hospitals for eight of the ten procedure codes used at the time, with the notable exception of cataract procedures which accounted for almost half of the tariffs reimbursed by *Medicare* to the ASCs (39). According to Casalino (95), these payment methods were based on initially different regulatory bases although the payments received by the ASCs did not reflect their production costs.

This tariff system is believed to have contributed to an excessive increase in the ASCs. It was therefore amended by *Medicare* in 2008 and ASCs had four years (2007-2011) to adapt to it.

There are currently two co-existing tariff grids in ASCs; the classification of a procedure into one or the other depends on whether or not the procedure can be carried out in office.

For procedures not able to be carried out in office

Each stay is now classified in the same APC scale (*Ambulatory Payment Classification*)[98] as is used for hospitals.[99]

The 201 APC codes used for hospitals also apply although the conversion tariff used is lower (US $ 42.63 in 2012). The tariffs are updated using the town households consumer price index (in which changes in buildings costs account for 42%). The tariff is also adjusted to take account of geographical differences in terms of tariffs and costs and is reassessed annually.

The hospital tariff is therefore 1.65 times that of the ASC tariff in 2012. According to *Medicare*, the difference between the ASCs and hospitals is explained by (97):

For procedures able to be carried out in office

For procedures which can also be carried out in office,[100] the tariff system is based on the tariff for medical offices (i.e. *Medicare Physician Fee Schedule* – MPFS). The intensity coefficient for professional fees, however, is smaller than for medical offices and a payment for facilities is added (*facility payment*).

> Payment in $ = (work intensity coefficient + professional fees intensity coefficient + coefficient for professional errors) X conversion coefficient + facilities payment.

Non-facility tariffs are capped at the level of those procedures carried out in office. When the facilities payment is added, however, the ASC tariff is often higher than for procedures performed in office.

The same surgical procedure is therefore liable to be paid at three different tariffs depending on the centre which performs it. In the United States, this raises the question of deciding whether the payment for the same procedure should be the same regardless of care centre and whether the price should become the same based on the most efficient provider. The concept of efficiency refers to lower cost but also the type of service offered and therefore the type of care provided, particularly in the ASCs.

Regardless, this relative efficiency analysis of producers cannot currently be used as the CMS do not require the ASCs to collect, report and approve costs or to provide data on quality of care (this information has only been collected since October 2012) allowing use of resources to be linked to the clinical result (99).

[98] Prior to 2008, the ASCs classified procedures into only nine payment groups in which the tariff ranged from $333 and $1,339 (96).

[99] The use of the same scale is consistent with the *Medicare Payment Advisory Commission* 2004 guidelines which recommended that the relative weights of procedures be aligned between ASCs and hospitals.

[100] In practice, these involve procedures at least 50% of which are carried out in doctors' offices.

Patient co-payment

The ASCs invoice patients or their insurance company for a technical payment which funds these costs. The surgeons invoice their services separately to the patient or the patient's insurance company (89). *Medicare* reimburses 80% of the tariff, the remainder (20%) being paid by the patient (co-payment).

The hospital receives 70% of the co-payment due by the patient from *Medicare* if the patient cannot pay it, whereas the ASCs receive no reimbursement from *Medicare* if the patient contribution is unpaid (97).

► Comparative costs

The emphasis on the economic benefit of the ASCs is based on the concept that highly specialised surgical activity a small number of procedures allows their activities to be organised in dedicated units which increases volumes (economies of scale) and productivity (95), by increasing the use of productive capacity. The consequence is a reduction in unit production costs and therefore in costs invoiced, which benefits both the funder and also the patient (reduced patient co-payment).

In 2006, the *Government Accounting Office* (GAO) carried out a study on the 20 most common procedures carried out as day surgery for *Medicare* patients. This confirmed that the median costs[101] for those performed in ASCs were substantially lower than those carried out in hospitals. (100). In addition, costs were more concentrated around the median for the ASCs (45% of procedures within the median +/- 0.1 point) than in hospitals (33% of procedures within the median +/- 0.1 point).

► Quality of care of ASCs compared with hospitals or medical offices for day surgery

The difference in quality of care between hospitals and/or medical offices *versus* ASCs has been examined in three studies.

- Vila *et al.* (101) carried out a study in Florida over the period 2000-2002, from administrative data intended to assess the difference in quality between surgical procedures carried out in office (141,404 over the period) compared to ASCs (2,316,249 over the period): The quality indicator was derived from the adverse event rate and death rate per 100,000 people:
  - the number of adverse events was 93 in office and 123 in ASCs, i.e. a rate of 65.8% per 100,000 in office compared with only 5.3 in ASCs. The relative risk was therefore 12.4 [9.5-16.2; 95% CI] between the two types of management in favour of the ASCs,
  - the death rate was 9.2 per 100,000 in office [13] compared to 0.8 in ASCs [18], i.e. a relative risk of 11.8 [5.8-24.1; 95% CI] between the two types of care.

  This study was only carried out in one American state and over a limited period of time. It assessed the quality of care by global indicators (development of adverse events, mortality rates) without clearly linking the event to the type of care. It also raised the finding that the more complex patients could not be cared for in office because of regulations. No statistical analysis was possible on the accreditation of the surgeons or offices and the presence of an anaesthetist. The authors also highlighted that results already published on the same subject were contradictory, in their view illustrating the difficulty of obtaining and comparing this information;

- Fleisher *et al.* (102) published a study over the period 1994-1999 on a representative national sample (5%) of *Medicare* patients. The authors listed the adverse events which occurred after the surgical procedure (death, emergency department visit, readmission) distinguishing these by type of centre for 16 procedures.

[101] The median cost was an index of 0.39 for the ASCs and 1.04 for hospitals where an index of 1 represents the median cost of the procedure, all types of management combined.

Five hundred and sixty-four thousand, two hundred and sixty-seven procedures were studied including 360,780 (64%) performed in hospitals, 175,288 (31%) performed in ASCs and 28,199 (5%) performed in office. The rates per 100,000 are shown in Table 5. These show that regardless of the indicator used (deaths, emergency department visits, readmissions), adverse events occurred more commonly in hospitals than for the other types of care (ASC or in office).

Table 5. Adverse event rate per 100,000 people for 16 different procedures by type of care, for *Medicare* patients between 1994 and 1999

Adverse event	Hospital	ASC	In office	All
Death on the day of the procedure	2.5	2.3	0.0	2.3
Death, 0-7 days	6.2	3.1	4.4	5.1
Death, 8-30 days	259.1	5.6	5.2	6.6
Emergency department visit, 0-7 days	106.6	103.6	109.9	203.3
Emergency department visit, 8-30 days	259.1	79.6	60.3	95.9
Readmissions, 0-7 days	432.7	91.3	226.3	316.3
Readmissions, 8-30 days	115.3	74.0	74.3	100.4
Total number of procedures	**360,780**	**175,288**	**28,199**	**564,267**

Source: Fleisher 2004 (102).

Multivariate logistic models were tested separately for deaths, visits and readmissions. These showed that the likelihood of dying within seven days was related ($p < 0.05$) to age over 85 years old [OR 2.3; 95% CI 1.41-2.97], female sex [OR 0.69; 95% CI 0.51-0.93], having the procedure done in hospital [OR 1.47; 95% CI 1.00-2.16] and being hospitalised during the two quarters before the procedure [OR 1.44; 95% CI 1.29-1.61].

The <3179 *Odds Ratio* (OR, 95% CI) for readmission within seven days after the procedure was 1.59 [1.4-1.81] for in office procedures and 2.66 [2.49-2.84] for hospitals.

Adverse events occurred more often therefore if the procedure was carried out in hospital. According to the authors these results should be interpreted with caution because:

- the study only involved a relatively small sample of *Medicare* patients and the numbers of patients were very different between procedures,
- the number of adverse events ranged greatly between procedures, the relative risk (*Odds Ratio*, 95% CI) of a visit to the emergency department within seven days after the procedure was, for example 1.68 [1.49-1.88] for a carpal tunnel procedure and 6.27 for insertion of an arteriovenous stent [5.53-7.11],
- it only partially takes account of the patient's state of health (age, comorbidities, previous admissions),
- patients treated in hospital were mostly of African or Hispanic origin and could have had difficulties accessing care;

- Chukmaitov *et al.* (103) compared adverse events in ASCs compared with hospitals over the period 1997-2004 in the state of Florida for 12 procedure types and 7.6 million procedures using discharge administration data from the Florida administration[102] and survival statistics from the Florida Department of Health. Adverse events were assessed as 7 and 30 day mortality and hospital readmission data. The study showed:
  - **for 7 and 30 day mortality**, there was no significant difference between the two types of care for 10 of the 12 procedures studied. Only cataract and gastrointestinal endoscopy procedures showed a lower *Odds Ratio* for mortality than the ASCs (cataract OR 30 days 0.84 [CI: 0.73-0.98]; endoscopy: OR 7 days 0.66 [CI: 0.52-0.84], OR 30 days 0.73 [0.64-0.84]),
  - **for hospital readmissions**, the results favoured hospital care for seven of the 12 procedures studied after adjusting for the risk of the primary diagnosis and for nine of the 12 procedures after adjustment for risk of all diagnoses.

Chukmaitov *et al.* (103) also identified some theoretical factors in the literature which could explain the apparently better quality of care delivered by the ASCs:

- the ASC doctors could select patients in better health or who were less complex,
- the ASCs carry out a limited number of procedures. They therefore have considerable activity within these procedures and benefit from scale and learning effects,
- the ASCs generally have more modern techniques and equipment, better coordination and communication between staff and have organised their activities around the patient.

Conversely, the hospital day surgery units could also produce better quality care than the hospitals for the following reasons:

- hospital day surgery units have the hospital equipment and technical platforms and rapid excess to emergency services. They can therefore carry out more complex or higher risk procedures.
- Hospitals have medical procedure quality programmes and coordinate with other units in the facility.

► Patient selection

The issue of patient selection has been considered widely in the literature about the ASCs. Hospitals and the *American Hospital Association* (AHA) often quote patient selection by the ASCs as ("*cherry picking*") which would give priority treatment to patients with better insurance and those in better health and only provide the most profitable services (particularly cardiovascular and orthopaedic) (95).

Six studies (22, 39, 104-107) have confirmed that patients seen in the ASCs have different characteristics on several points from those attending hospitals for day care procedures.

- a study by Winter on 1999 data (39) compared the severity of patients treated in ASCs with those treated in hospital using the *Medicare* risk scores[103] used by the CMS. The study included 103,000 procedures carried out by ASCs and 244,000 procedures carried out by hospitals. It showed significantly higher risk scores ($p < 0.01$) for procedures carried out in patients in hospital, the differences in risk score ranging from - 2% for cataract to - 36% for skin surgery in ASCs;
- A study by Rand in 2001 (104) confirmed these results in a sample of 5% of *Medicare* beneficiaries for three types of procedures performed both by the ASCs and hospitals (cataract surgery in 77,294 patients, colonoscopy in 90,890 patients, and in MRIs in 40,497 patients). A list described around twenty patient characteristics of patients liable to undergo the most complex procedures (e.g. age over 85 years old, dependency, dementia, alcoholism, co-

[102] *Florida Agency for Health Care Administration* (AHCA).

[103] Risk is assessed by age, sex and diagnosis. The risk score is compared to level 1 which represents the average risk score for Medicare recipients. The analysis was controlled for type of procedure performed.

morbidities associated with the procedure). For these three procedures those patients which had them carried out in hospital were significantly[104] more complex than patients treated in ASCs;

- In a retrospective study from 2005 data using day surgery databases from Florida, Strope *et al.* (105) compared 1.14 million procedures carried out in ASCs and 2.6 million carried out in hospitals for four procedures performed on a day care basis (gastro-intestinal endoscopy, cataract surgery, knee arthroscopy and urological surgery). The authors showed that access to the ASCs was lower in:
  - patients of lower socio-economic status[105] (60% of patients who were seen in an ASC compared with 64 to 67% of patients in other groups; $p < 0.001$). Access to an ASC was greater in groups of average social status with an OR of 1.23 (95%: CI: 1.21-1.25) to 1.36 (95%: CI: 1.35-1.38),
  - for Caucasian patients or those of African origin, increased social status was associated with increased access to the ASCs, although the relation was reversed in patients of Hispanic origin (OR 0.84, 95%: CI 0.78-0.91);
- according to the *Medicare Payment Advisory Commission* data, fewer ASC patients (22):
  - were disadvantaged patients in receipt of *Medicaid* (14% of *Medicare* patients in the ASCs, compared with 23.1% for hospitals in 2010),
  - fewer were of African American origin (6.8% of patients in *Medicare* were Afro-American in the ASCs compared with 10.4% in hospitals in 2010),
  - fewer were very elderly (7.4% of *Medicare* patients were over 85 years old in the ASCs compared with 10.9% in hospitals in 2010),
  - fewer were suffering from handicap (i.e. those under 65 years old receiving *Medicare*): 14% of handicapped patients receiving *Medicare* were found in ASCs compared to 21.4% in hospitals in 2010. These figures are relatively stable over the years;
- the retrospective study by Meyerhoefer *et al.* (106) was based on four procedures (knee arthroscopy, hernia surgery, colonoscopy and cataract surgery) carried out in Florida over the period 2004-2008, in 4.051 million *Medicare* insurance members with private insurance. The authors calculated the likelihood of a patient being treated in an ASC or in hospital, depending on the diagnosis and severity (number of secondary diagnoses reported, age and sex). They showed that:
  - the likelihood of being treated in an ASC varied greatly between procedure (from only 24% for hernia to 89% for cataract),
  - for patients at highest risk (i.e. between the 76th and 100th risk percentile), they found:
    - high selection for hernia procedures. Patients were 76% ($p < 0.05$) less likely to be treated in ASCs if they were in *Medicare* and 10% ($p < 0.05$) less if they had private insurance.
    - moderate selection for knee arthroscopy. Patients were 16% ($p < 0.05$) less likely to be treated in ASCs if they were in *Medicare* and 10% ($p < 0.05$) less if they had private insurance.
    - moderate selection for colonoscopy. Patients were 17.6% ($p < 0.05$) less likely to be treated in ASCs if they were in *Medicare* and 5.03% ($p < 0.05$) less if they had private insurance.
    - low selection for cataract. Patients were 10% ($p < 0.05$) less likely to be treated in ASCs if they were in *Medicare* and 11.9% ($p < 0.05$) less if they had private insurance.

[104] Fisher's Test

[105] Assessed by mean income, property value, educational level and unemployment rate measured in detail by the post code of residence.

The selection was greater for *Medicare* patients, representing an accumulation of effects against ASC care, as the fact that *Medicare* patients were over 65 years old was added to the type of insurance effect.

The authors reported that these differences in risks were due to differences in cost of care and concluded that the payment difference between the ASCs and the hospitals needed to depend on the level of risk of the patients treated (for example, by proposing a three to four level patient risk scale). They suggested that the lack of nuance in the tariff scale helped to increase selection of low risk patients.

According to the authors, an ideal tariff system would be a system which remunerated the ASCs and the hospitals with the same tariff for a given quality level after adjusting for differences in patient case mix and patient financial reimbursement. Higher care reimbursement could then reflect differences in observed quality. The current funding used which is an ASC – Hospital proportional tariff with a homogeneous coefficient of 65% of the tariff may therefore be inappropriate for some procedures (106);

- in a 2011 study, Plotzke (107) sought to confirm the hypothesis that the ASCs selected the most profitable procedures. The authors used the NSAS database which included *Medicare* patients undergoing day surgery in 1994, 1996 and 2006 (n = 86,000 surgical procedures performed) and calculated the procedure margins from a ratio (tariff received by the ASC/mean estimated cost[106]). The likelihood of a profitable surgical procedure being performed in ASC was estimated using a linear model. After adjusting for the type of surgery carried out the authors found that a 10% increase in profit margin was associated with a 1.2 to 1.4 point increase in the likelihood that the patient would be treated in an ASC.

► Competition with hospitals

As the ASCs are in competition with hospitals, this encourages the hospitals to make productivity gains in order to maintain their market share. The ASCs are therefore deemed to promote "healthy" competition by the antitrust federal authorities (108).

As such, the competition introduced by the ASCs is often deemed by the hospitals to be disingenuous for several reasons according to the authors:

- Dummit (109) suggested that general hospitals were not able to improve their efficiency for their entire range of services which by definition is broader than that of the ASCs. Their organisation is therefore structurally more "versatile" as it needs to adapt to production of multiple services not necessarily linked to each other. They may also operate over capacity in order to be able to respond to urgent care needs or absorb seasonal variations in activity;
- according to Carey (108), the ASCs selected[107] patients and services which appeared to be most profitable leaving the other services or patients to the hospitals. This hypothesis was confirmed by the characteristics of patients treated by the ASCs (cf. *below*);
- according to Carey (108), hospitals which can no longer treat patients for which they achieve a positive profit margin against the official funding can no longer cross-fund unprofitable activities, particularly the care of people without insurance which would leave them structurally in deficit;
- nevertheless according to Meyerhoefer (106), hospitals could make economies of scale which cannot be achieved by the ASCs. The most severely ill patients can only be treated in hospital because of the availability of ancillary services and urgent care;
- doctors are permitted to refer *Medicare* and *Medicaid* patients to the ASCs , in whom they have financial interests from their social contribution, which would lead to conflicts of interests which could result in unnecessary surgical procedures (the induced demand effect) (108). One of the justifications promoted for this referral is the lower cost of practices in ASCs (106);

[106] As the mean ASC costs are not known by the CMS, the authors approximated the ASC costs to the average cost of the procedure in hospitals.

[107] Through the effect of *cream skimming* cases.

- the ASCs specialise in the most attractive procedures for patients and doctors and not those which are the least expensive for the funder (108).

Seven econometric studies (108, 110-115) and one qualitative study (95) by interviews attempted to estimate the impact of ASCs on hospitals using macroeconomic data available in the different databases. These are shown in Table 6. Their results are summarised below:

- **impact on volumes**: in two studies (110, 114), the existence of independent ASCs modestly reduced general hospital day care surgery activities (in the region of - 4%), but only if the two organisations were located close to each other. No effect was seen on conventional hospital admissions;
- **Impact on profits**:
  - the data analysed did not show that the ASCs delivered care more efficiently than the hospitals; one study even showed that the ASCs were less efficient, (112)
  - on the other hand, the existence of the ASCs appeared to increase hospital efficiency by encouraging them to reduce their production costs (108, 111), which led to them increasing their profit margins (111) but reducing their income (108),
  - the entrance of a new ASC into the market had no impact on general hospital profit margins (111). One interpretation of this may be that the ASCs were only established in profitable areas where the hospitals achieved the greatest profit margins (particularly in urban areas) (115),
  - there are occasional economies of scale and cross subsidisation between general hospitals because of diversification between day surgery activities and conventional hospitalisation. (112, 115)

Table 6. Study of the impact of ASCs on activity and market shares of hospitals

Author, date	Data analysed, methods	Results
Casalino, 2003 (95)	**Objective:** analysis of the impact of ASCs and specialist hospitals on practices and efficiency, 2000-2001 and 2002-2003. **Data used:** retrospective study based on site visits by CTS:[108] interviews with facility directors (n = 26) and hospital medical directors (n = 39) in 20 metropolitan areas selected at random. **Method:** *scoring* assessment (scale 1 to 5; 5 indicating strong agreement).	**Advantages of ASCs or specialist hospitals:** improve control of the working environment and planning for doctors (4.5[109]), directors (3.7). Increased efficiency: doctors (4.1), directors (3.0). Organisational process promoting ASC quality, doctors (4.0), directors (2.4). Patient selection: doctors (2.1), directors (3.5). Income transfer to doctors: doctors (2.9), directors (3.7). **Opinion of general hospitals** The doctors from general hospitals recognise the performance of the ASCs and specialist hospitals but describe patient selection making the competitive advantages obtained by the ASCs or specialist hospitals unfair. The financial results according to them were poorer in the hospitals. The specialist centres remain dependent on the hospitals if problems occurred.
Bian, 2007 (110)	**Objective:** to analyse the effect of the ASCs on day care volumes in hospitals. **Data used**: retrospective study from *American Hospital Association* (AHA) and *Medicare Online Survey Certification and Reporting System* (OSCAR) statistics for the period 1993-2001. Number of ASCs per 100,000 people in the urban areas (n = 317). **Method:** regression estimation method based on the ordinary least squares method.	The increase in ASCs per 100,000 people is statistically associated with a fall in day care procedures performed in hospital (one additional ASC per 100,000 reduces hospital day care procedures by an average of 4.3% per year; $p < 0.01$). No statistically significant effect on the number of procedures performed in full hospitalisation.
Schneider, 2007 (111)	**Objective:** to analyse the effect of the ASCs on financial performance of hospitals, period 1997-2004. **Data used:** retrospective study from financial data obtained via *Medicare's Healthcare Cost Reporting Information System* (HCRIS) for short stay hospitals. 548 hospitals located in a district with at least one ASC. **Method**: multivariate model explaining income costs and profit margin.	The presence of an ASC had a negative impact on costs (- 4.5% compared with the situation without an ASC in the area) (log-log $R^2 = 0.9$) and a positive impact on profit margins for general hospitals (Translog $R^2 = 0.93$). Entrance of a new ASC had no positive or negative impact on general hospital profit margins. The presence of ASCs appears to increase the efficiency of general hospitals.

[108] *Centre for studying Health System Change's community tracking study*.

[109] This is a score obtained from the people interviewed.

Author, date	Data analysed, methods	Results
Carey, 2008 (112)	**Objective:** cost comparison between the specialist hospitals and general hospitals. **Data used** : *Medicare Cost Reports* 1998-2004, medical data, data from the *American Hospital Association* and discharge data for specialist hospitals in Texas, California and Arizona. **Method**: estimation of cost function using a stochastic production frontier.	No evidence from the data analysed showing that specialist hospitals (inefficiency score of 0.425 compared to 0.274 for general hospitals) delivered more efficient services than the general hospitals (t values = 0.151; $p < 0.01$). The specialist hospitals appeared to perform less well in orthopaedics and surgery (t value = 0.197; $p < 0.01$). Economies of scale were found in the general hospitals between day care and full hospitalisation.
Carey, 2009 (113)	**Objective:** measurement of the impact of the introduction of a specialist hospital on the range of services offered by general hospitals. **Data used:** retrospective study from data from the *American Hospital Association* 1997-2004, from 10 States and 1,249 general hospitals, including 309 in 1997 and 575 in 2004 in competition with at least one specialist hospital. **Method:** logistic regression, the observation unit was the hospital.	The general hospitals' response to the introduction of specialist hospitals by entering into direct competition with them through extending the range of services offered and increasing the technology offering (MRI, PET, CT, ultrasound, lithotripters). Introduction of day case surgery did not correlate with the introduction of specialist hospitals.
Courtemanche, 2010 (114)	**Objective**: analysis of the effect of ASCs on general hospital volumes. **Data used**: data from the *Centres for Medicare and Medicaid Services* (CMS) and *Provider of Services* (POS) and from the *American Hospital Association* between 1999 and 2004 and geocoding; 2,243 hospitals with an average of 5,600 day case surgery cases and 3,600 conventional hospitalisation procedures annually. **Method:** log regression of the number of day case procedures compared to the number of ASCs on the market.	Compared to the initial situation, introduction of the ASCs had an overall negative impact on the activity of general hospitals (- 2.7% to 3,2%, $p < 0.001$), although this effect was only seen when they were located only a few kilometres away. The reduction in volume appeared to be limited (2 to 4% depending on the site) and had no significant impact on the full hospitalisation volumes.
Gregg, 2010 (115)	**Objective:** effect of ASCs on profit margins for rural hospitals. **Data used**: retrospective study on the market characteristics of the ASCs between 1997 and 2006; data from the *American Hospital Association* and from *Medicare Online Survey Certification and Reporting System* (OSCAR), *Medicare's Healthcare Cost Reporting Information System* (HCRIS). Rural hospitals (according to the Department of Agriculture). **Method**: regression model using the Stata XTIVREG function.	Rural hospitals where the ASC was located less than a mile away had higher average profit margins per patient and total profit margins ($p < 0.05$). Hospitals located between 1 and 50 miles from an ASC had lower or even negative profit margins ($p = 0.05$). A closely located ASC therefore made the hospital more profitable although the authors reported that agreements (*joint ventures*) were established with the ASCs for surgical procedures making them more profitable The study was limited in power as only 453 ASCs were located in rural areas compared to 4,201 in city areas.

Author, date	Data analysed, methods	Results
Carey, 2011 (108)	**Objective:** the effect of ASCs on hospital incomes, costs and profit margins. **Data used** : 49 regional health markets (*Hospital Reference Regions*)[110] covering three States (Arizona, California and Texas); data from the CMS and *American Hospital Association Annual Survey Databases* (AHA). **Method**: three regression models[111] were estimated for three dependent variables: net income per patient, total hospital expenditure and profit margin.	The average number of ASCs working (over one or two years) in the region studied more than doubled from 14.6 in 1997 to 33.1 in 2004. There was a significant negative correlation between the number of ACS and hospital income and costs ($p < 0.01$). Each additional ASC reduced the hospital's revenue by $293,000, costs by $ 190,000 and profit margin by 0.08% The change in the overall number of hospitals in the area did not impact on income or costs. The number of specialist orthopaedic and surgery hospitals was positively associated with income and costs whereas the number of admissions for cardiac activities correlated negatively. Increase in the local population did not correlate with income or costs.

[110] Hospital reference regions as defined in the *Dartmouth Atlas of Health Care*. There are 306 *Hospital Reference Regions* (HRRs) in the United States. The regions were defined according to the facilities where patients due to undergo major surgical procedures were referred if they had cardiovascular problems, and for neurosurgery.

[111] Panel models for longitudinal data

2.5.3 The British *Independent Sector Treatment Centres* (ISTCs)

Independent day surgery centres developed in the United Kingdom through the creation of "ISTCs" (*Independent Sector Treatment Centres*).

The care offered by the different ISTCs covers several specialities (mostly ophthalmology and orthopaedics). They involve external consultations, diagnostic procedures and day surgery. They are private commercial organisations or organisations belonging to the NHS which carry out planned surgery with standardised procedures. They are located outside of the hospitals.

The ISTCs were created in several waves:

- the first centre was established in 1999 at the *Central Middlesex Hospital*. Fifteen other centres were then opened;
- a national programme was announced in 2002 (116), enabling 25 fixed and two mobile ISTCs to be created from 2003 onwards.
- Forty-eight centres belonging to the NHS (NHS *Treatment Centres*) also developed in the early 2000s (117);
- a second wave was created in 2007 (when 10 new ISTCs were created).

In terms of activity, at the end of 2007, the ISTCs carried out 4% of cataract operations, 7% of hip operations and 9% of arthroscopies performed in the United Kingdom (117).

The initial aim pursued by the NHS through the development of ISTCs was to increase care production capacity and thereby reduce waiting lists. An additional aim was to offer patients more choice and to increase productivity by offering innovative care models and promoting best practice[112] (54, 118). The ultimate objective was to introduce competition with NHS Hospitals (117).

In addition, these centres carried out planned surgical procedures considered to be at least risk in ophthalmology, orthopaedics and day surgery. The NHS assumption was that separating urgent surgical procedures from planned ones would reduce waiting times for planned procedures (117)

► Funding and tariffs

The ISTCs are funded on the basis of a five year contract negotiated with the British Department of Health:

- procedure prices are based on national NHS HRG group tariffs combined with a supplement (on average 11.2%) to encourage operators to come into the market and allow them to cover their set-up costs (117, 119);
- the contract also allowed for guaranteed payment (a system called "*Take or pay*") allowing the ISTC to achieve a certain level of remuneration covering the centre's fixed costs,[113] independently of the number of procedures performed (116).

► Assessment of the initial phase of the ISTCs system

In 2006, the *House of Commons Health Committee* (116) published its assessment report on the first introduction phase of the ISTCs. This report was based on hearings with health professionals, health policy experts and from visiting three centres.

The results of the assessment were very subtle in terms of how the ISTCs had achieved their objectives. It highlighted in particular:

- that the ISTCs had not made any direct contribution to NHS production capacity;

[112] This refers to the use of mobile units to facilitate patient access to care in some areas, organisation of the centre around patient flow, rationalising supply of prostheses by restricting the ranges, use of local rather than general anaesthesia to reduce patient waiting time, improving conservation and recycling blood products, *fast-track*.

[113] The total payments made to the ISTCs were £1.4 billion annually (117).

- that the introduction of ISTCs was often inappropriate, particularly in terms of areas where the care offering was under pressure;
- that waiting lists fell, although that this effect was not attributable overall to the ISTCs;
- that the ISTCs had increased patient choice but in the absence of information about quality patients were not able to make an informed choice;
- that the ISTCs were paid less, which had contributed to a fall in care costs paid by the NHS.

The report recommended that standardised quality data be published. In response, the *Patient Outcomes in Surgery* (POS) audit was set up in order to compare patient characteristics and *case mix*-adjusted results reported for these patients. The POS designed a pilot study examining the feasibility of routine result data collection (*Patient Reported Outcome Measures* or PROM).

► Complexity of cases treated in ISTCs and care performance

The ISTCs treat less complex patients than the hospitals. Three studies (54, 119, 120) sought to assess this complexity. Two which were carried out through the POS combined this with health care results:

- **an initial pilot study in the POS programme** was conducted over the period 2006-2007 on 769 patients treated in six ISTCs and 1,895 patients in 20 NHS hospitals[114] (54), for four surgical procedures (inguinal hernia, varicose vein operations, cataract and hip or knee replacement). This found:
  - that the patients treated in ISTCs were in better health, had fewer comorbidities and were younger than the patients treated in hospitals,[115]
  - but after adjusting for preoperative characteristics the health results for the ISTCs measured on two scales (VF14[116] and EQ-5D[117]) were better for cataract (VF14: 2.6 points on a 100 point scale, p = 0.005; EQ-5D: 0.03 on a 0 to 1 scale, p = 0.01) and hip surgery (OHS[118]: 2.4 points on a 70 point scale, p = 0.03; EQ-5D: 0.06 point, p = 0.03). Patients treated in the ISTCs had fewer complications than NHS patients, particularly for cataract (p = 0.004), hernia surgery (p < 0.001) and knee surgery (p < 0.001),
  - this pilot study had considerable methodological bias, highlighted by the authors: the number of participating ISTCs was small and the findings were difficult to generalise. The adjustments for differences in *case mix* were limited;

- **a second larger POS study** was therefore carried out by the same team[119] in 2008-2009 (120) on 25 ISTCs and 72 NHS hospitals. This included:
  - 5,671 patients in ISTCs and 14,292 NHS patients for hip operations,
  - 640 patients in ISTCs and 2,023 NHS patients for inguinal hernias,
  - 248 patients in ISTCs and 1,336 NHS patients for varicose veins.

[114] Recruited by staff at admissions procedure.
[115] Cataract: NHS comorbidities = 78.8% of patients, ISTCs = 71.4%; poor health NHS = 22.3%, ISTCs = 16.4%;
hernia: comorbidities NHS = 49.1% of patients, ISTCs = 39.1%; poor health NHS = 8.1%, ISTCs = 5.8%;
varicose veins: comorbidities NHS = 59.5% of patients, ISTCs = 57.2%; poor health NHS = 10.2%, ISTCs = 5.7%;
hip replacement: comorbidities NHS = 86.2% of patients, ISTCs = 80.4%; poor health NHS = 21.5%, ISTCs = 14.9%;
knee replacement: comorbidities NHS = 86.7% of patients, ISTCs = 80.7%; poor health NHS = 21.7%, ISTCs = 11.5%.
[116] This is a specific functional visual scale for ophthalmological diseases.
[117] EuroQol-5D: a generic scale standardised for use as a measure of health care results. Applicable to a range of states of health and treatments. This provides a simple descriptive profile and a simple index value for state of health.
[118] *Oxford Hip Score*.
[119] The authors belonged to the *Royal College of Surgeons* and *London School of Hygiene and Tropical Medicine*.

- This study confirmed that:
  - patients treated in ISTCs were in less poor health than patients treated in NHS hospitals.[120]
  - after adjusting for *case mix*, the NHS patients had a poorer health result - 1.7 for OHS (95% CI, - 2.5 to - 0.9) and - 0.9 points on the *Oxford Knee Score* (95% CI, - 16 to - 0.2); more developed complications *Odds Ratio* 1.3 (95% CI: 1.1 to 1.5) for hip and 1.4 (95% CI: 1.2 to 1.6) for knee. On the other hand there were no differences in result after hernia surgery or varicose vein procedures.

The POS study authors concluded that patients treated in the ISTCs were in better health than NHS patients. There were few differences in health results between the two types of organisations after adjusting for *case mix*;

- Mason *et al.* (119) used 2007-2008 data from the *Hospital Episode Statistics* (HES). There were 6.97 million patients treated in NHS hospital facilities compared with only 93,457 patients treated in the ISTCs. The ISTC patients
  - had significantly fewer ($p < 0.01$) concomitant diagnoses (WMD[121] - 0.59; 99% CI [- 0.79 to - 0.39]), for the 30 most common coded HRGs.
  - had fewer combined procedures (WMD - 0.66, 99% CI [- 0.81 to - 0.51]) and came from more disadvantages areas than the ISTC patients (WMD - 1.56%, 99% CI [- 2.21% to - 0.92%]).

One of the limitations of the study was the considerable uncertainty about patients treated in ISTCs as 36% did not have an HRG code compared with less than 1% of NHS patients.

In more general terms, according to Pollock *et al.* (118, 121), the British Department of Health did not collect reliable data allowing the activity of the ISTCs to be assessed, and particularly to link this to state of health obtained and tariffs applied. The quality and performance of the ISTCs therefore remained unknown.

According to Mason *et al.* (119), the HRG tariffs with a supplement for ISTCs were unjustified, as patients were less complex than those treated in NHS hospitals. The authors recommended therefore that the HRG classification be improved in order to improve the distinction between patient complexity and take this into account in the tariff scales.

2.5.4 The independent centres in Germany

Day surgery in hospitals only developed late in Germany (21)[122] as the hospitals were not permitted to carry this out until 1993.

On the other hand, because of considerable separation between the day care sector and the hospital sector, surgeons (mostly in ophthalmology and orthopaedics) have long carried out day surgery activities in office. They were encouraged to do this in the 1980s by a change in the tariff system enabling them to recover their additional costs (equipment, staff and anaesthesia). The increase in safety requirements and regulations since 1993 has led to a reduction in in office practice in favour of the independent centres (46).

Nowadays, the great majority of day surgery in Germany is carried out in independent centres initially created on the initiative of specialist doctors. They vary in names ("*day clinics*", "*praxis*

[120] Before surgery, NHS patients due to undergo hip surgery had a 1.7 point lower *hip score*, a 0.03 point lower EQ-5D score; for knee replacement, the *knee score* was 0.9 lower and the EQ-5D was 0.02 points lower; for inguinal hernia, NHS patients were older, lived in economically disadvantaged areas and had more comorbidities. There were no differences for patients undergoing varicose vein surgery.

[121] *Weighted Mean Difference*. This indicator is often used in meta-analyses. By combining individual study results in a meta-analysis, statistical weighting may be given to the results of the studies included. By allocating this weighting factor it is possible to allocate more weight in the analysis to studies carried out in numerically larger populations or better methodological quality studies. The weighted mean difference is the result of a meta-analysis including studies in which the results are expressed as continuous variables (together with mean and standard deviation values), weighted and combined.

[122] Cf. chapter 14, Geissler *et al*. *Germany: understanding G-DRGs consequences* (21).

clinics", "*surgical centres*") and size. The largest centre in 2006 alone carried out 8,500 surgical procedures in five operating theatres (46).

A total of 69% of day surgery is understood to be carried out in the independent centres compared with only 31% in hospitals (45, 46). These centres have to meet the same organisational and structural requirements as the hospitals.

The catalogue of surgical procedures which can be carried out on a day surgery basis is negotiated between the hospitals, specialist primary care doctors and national insurance funds. This involves over 2,000 procedures.[123] This catalogue distinguishes:

- day surgery procedures which should usually be carried out in independent centres;
- the procedures which may be carried out in independent centres or in hospitals.

There is a debate in Germany on the boundary between these two types of procedures, particularly as some may continue to be performed in hospitals whereas as they could potentially be performed in specialists' offices.

2.5.5 Independent centres in France

► History

In France, the first independent centre was created in 1980 in Strasbourg by the surgeon Guy Foucher (122) for upper limb orthopaedic surgery without any legal involvement. In 1984, an agreement was signed with the Regional national insurance funds. Agreement was then made with a few facilities created subsequently, the Angers Centre which specialised in hand surgery and the Saint Jean de-Luz Centre which specialised in ophthalmology. These were alternative centres to hospitalisation outside of public and private health care facilities which only carried out day care activities and had no hospitalisation beds, but had a fallback agreement to refer their patients to a facility with hospitalisation facilities if necessary.

Other centres were then created still based on narrow areas of surgical activity: hand surgery in SOS Main in Strasbourg and Angers, ophthalmology in Nice and Saint-Jean-de-Luz and gastroenterology in Marseille and Reims. These centres had true technical platforms. They were entirely separate from a care facility, functioned independently and were the result of private initiatives. There were around thirty of these in 1991 (122).

In terms of tariffs, the agreement signed with these three facilities enabled them to receive the same payment value as an OTP (operating theatre payment). Because of the low payments investment planning was difficult. This type of agreement has remained extremely rare (122).

These independent structures outside of health care facilities with hospitalisation facilities only now exist in France as a result of being created from health facilities which have removed their hospitalisation facilities but remained as a legal entity (11, 84).

In 2012 HAS identified out of a total of 1,082 health care facilities which carried out surgical activities, approximately five which only offered day surgery stays and no other activities from a search in the (FINESS [National Health and Social Facilities File]). The features of these are shown in table 7.

In 2012-2013, there was no specific tariff for approved independent centres which received tariffs in the same way as private former OQN hospitals.

► Recent changes

On the basis that developing and experimenting with day surgery sites isolated geographically from a centre where conventional surgery was carried out was a way of increasing day surgery, the Île-de-France Regional Health Agency issued an order in 2012 – No. 12-111 – (123) opening a

[123] Document awaiting publication: Quentin Wilm, *Hit Germany, European Observatory on Health Systems and Policy*.

derogation window (on an exceptional basis and in the interest of public health) for the creation of one to two independent day surgery centres in the Île-de-France region by geographically transferring, grouping together or converting, as the number of approvals had to remain constant in the region.

In this order, an independent day surgery centre was defined as a geographically independent centre with its own material and human resources necessary for day surgery practice. It is a day surgery centre which is completely separate from a conventional care facility and has to meet the operating conditions stipulated in articles D6124-301 and subsequent of the French Public Health Code) on alternative care centres to hospitalisation, i.e.:

- the services delivered are equivalent in nature, complexity and the medical supervision which they require to those services usually carried out in a full hospitalisation; in particular the operating sector of the independent centre must comply with the features stipulated in the order of 7 January 1993 on the features of the operator sector listed in article D. 712-31 of the French Public Health Code (CSP) for centres carrying out anaesthesia or day surgery as stipulated in article R. 712 2 1 of the CSP;
- these centres must be easily identifiable by their users and be specifically organised. They are organised into one or more individualised care units with dedicated premises and material resources;
- they also have a medical and paramedical team whose functions and tasks are defined by the operating charter stipulated in article D. 6124 305 all of whom are trained in short term care, anaesthesia or day surgery;
- the team members who do not work primarily in the operating sector are allocated to the single anaesthesia or day surgery unit for the entire time the care is delivered;
- the units guarantee accessibility and movement of a patient lying down with instrumentation and with support staff. Conditions of access for these units to the different parts of the technical platform are organised such as to minimise patient movement as far as possible.

The ARS specifications stipulate that these geographically independent centres may:

- belong to the same legal entity as a health care facility;
- be a legally independent health care facility.

Table 7: Independent day surgery units and day endoscopy centres in France – Places and activity

Name of facility and *département*	Activities*
Clinique Mozart, Nice (dép. 06) – 10 places	Ophthalmology, phlebology, gynaecology, gastroenterology, general surgery: inguinal hernia, hand surgery, dermatological surgery, stomatological surgery, plastic reconstructive and aesthetic surgery, ENT surgery.
Hauts d'Avignon Day Surgery Centre, Les Angles (dép. 30) – 15 places	Dermatology, aesthetic or plastic surgery, gastroenterology, gynaecology, dental implantation surgery, orthopaedics, ENT.
Hand Centre, Trélazé (dép. 49) – 7 places	Hand surgery
Roosevelt Clinic, Paris (75) – 2 places	ENT, ophthalmology
Avicenne Clinic, Le Port (97) – 5 places	Ophthalmology, stomatology, dermatology, oto-rhino-laryngology and aesthetic surgery

* Five independent centres carrying out endoscopies were also identified although these activities are not deemed to be day surgery in terms of the T2A classifications (no C code).
Sources: FINESS database, (PLATINES [French health care information platform]) and websites of the facilities cited, read and corrected by the DGOS.

Key points

In order to accelerate the development of day surgery, some countries (United States and United Kingdom in particular) have chosen to promote the setting up of "independent day surgery centres". Most of these are geographically and administratively distinct from their neighbouring hospital facilities. They also exist in Germany and in France.

1- Independent centres in the United States

In the United States, day surgery is carried out in three types of centres: hospitals, *Ambulatory Surgery Centres* (ASCs) and practitioners' offices. Encouraged by *Medicare* to promote patient access to day surgery and to reduce waiting lists, the number of ASCs has increased rapidly since 1980. There were 5,316 of these in 2010 representing 37% of day surgery activity. The total cost of the ASCs to *Medicare* has therefore increased from $1.2 billion in 1999 to $3.4 billion in 2010, i.e. by 183% in eleven years.

Tariffs

At the beginning of the 2000s, tariffs for day surgery carried out in the ASCs were higher than for those carried out in hospitals for eight of the ten procedure codes in use at the time. This tariff system is believed to have contributed to the accelerated development of ASCs. It was therefore changed by *Medicare* in 2008 and the ASCs were given four years (2007-2011) to adapt to these. Two types of tariff system are currently used:

- **for procedures which can also be carried out in medical offices: the ASC tariff system is based on the in office tariffs (i.e. *Medicare Physician Fee Schedule* – MPFS). The intensity coefficient for professional fees, however, is lower than for medical offices and a facility payment is added;**
- **for procedures which cannot be carried out in medical offices: each stay is now classified in the same scale of 201 APC (*Ambulatory Payment Classification*)[124] codes as is used for hospitals. The monetary conversion tariff for APC codes in the ASCs is lower than for hospitals ($42.63 US in ASCs compared to $70.12 in hospitals in 2012).**

Assessment

The studies are based on the patient characteristics and quality of care delivered in ASCs compared with in office and hospitals. The studies found showed that:

- **because of the many factors which could be involved (type of procedure, socio-demographic characteristics of the patients) and occasionally contradictory results, it is not possible from the data published to identify differences in quality (measured by adverse event rates) between procedures carried out by the ASCs as day surgery compared with those performed in hospitals or in office;**
- **patients having surgery in the ASCs had different characteristics to those treated in hospitals. They were younger, more had private insurance and had fewer comorbidities than patients treated in hospitals. These findings do not as such confirm the hypothesis of case selection, as the ASCs are mostly located in large metropolitan areas which have similar socio-demographic characteristics to those of the population seen, unlike the community hospitals which see patients from more diverse population catchments;**
- **the findings confirming the hypothesis that the ASCs have an impact on general hospital activity are not particularly robust, especially as information on tariffs and the population treated in the ASCs are not freely accessible and the estimates are based on general macroeconomic findings. They do not specifically document the changes in**

[124] Before 2008, the ASCs classified procedures into only nine payment groups, the tariffs for which ranged from between $333 and $1,339 (96).

cases treated or the severity of patients treated in each centre;

- **the data examined did not establish that the ASCs delivered more efficient care than the hospitals. On the other hand, the presence of ASCs within the geographical catchment of hospitals could improve the hospitals' efficiency.**

2- Independent Centres in the United Kingdom

Day surgery has developed in the United Kingdom in the "ISTCs" (*Independent Sector Treatment Centres*) which may be public or private. The care offered by the different ISTCs covers several specialities (mostly ophthalmology and orthopaedics). They include external consultations, diagnostic procedures and day surgery. There are around a hundred of these and their contribution to day surgery in the United Kingdom is still marginal (only 4% of cataract operations, 7% of hip operations and 9% of arthroscopies in 2007).

Tariffs:

- **the procedure tariffs are based on those for hospital activity (British National Health Service HRG Groups), combined with a supplement (average 11.2%) in order to encourage operators to enter the market and enable them to cover their set up costs;**
- **the five year contract with the NHS also allows for a guarantee ("*Take or pay*") of fixed structural costs regardless of activity.**

Assessment

Overall, the evidence base available from the three published studies shows that patients treated in NHS hospitals were more complex than those treated in the ISTCs. These differences may justify differential tariffs, although in the opposite direction to the system used by the NHS, i.e. allocating a higher tariff for patients treated in NHS hospitals rather than those treated in the ISTCs. In any event, the differential tariff could not be established as the quality of care and performance of ISTCs were not known.

3- *Independent centres in Germany*

Hospitals were only permitted to carry out day surgery after 1993 in Germany. Independent centres were created at the initiative of primary care specialists and then increased to represent almost 70% of day surgery procedures carried out in the country. A tariff scale for day surgery procedures is used for those which usually have to be carried out in independent centres. For procedures which can be carried out both in independent centres and in hospitals the activity based tariff (G-DRGs) is applied. For day surgery the National Health Insurance funds must apply a tariff of between 50 and 90% of the tariff for conventional hospitalisation.

No studies were found assessing the operation of the independent centres in Germany.

4- Independent centres in France

A few independent centres were created at the beginning of the 1980s in France. In 2012, five were identified in the FINESS file (which are only approved for surgery carried out as day surgery).

In 2012, the Île-de-France Regional Health Agency issued an order opening a derogation window (on an exceptional basis and in the interest of public health) for the creation of one to two independent day surgery centres in the Île-de-France region.

The tariff methods for these centres are the same as those applying in other health care facilities (GHS and J tariffs).

No studies assessing the functioning of the independent centres in France or characteristics of patients treated were found in the published literature.

2.6 New tariff principles proposed in other countries

The criticisms made of activity-based tariffs have led to alternative tariff models being sought. The main limitation was that activity-based payments did not provide any incentive to improve the quality of care provided. In addition, the link between tariff and observed production cost is only appropriateif it is assumed that the centre's production method is appropriate or even optimal.

Some countries have sought to find an incentive model to lead professionals to offer the most appropriate treatment for the patient's situation, at the lowest possible cost (efficiency).

In order to do this, cost-based pricing needs to be abandoned (24) in favour of tariff principles which are appropriate for the desired objective. The term used for this is normative pricing (27).

Two types of normative pricing have been developed very recently for surgery (i.e. since 2009). These are the best practice tariff in Great Britain (part 2.6.1) and the bundled payment tariff in the United States (part 2.6.2).

2.6.1 Best practice tariff

The principle of the best practice tariff[125] was designed in Great Britain to encourage providers to produce high quality cost effective care. It is different from the average cost by HRG tariff which had been introduced in this country in payment by results. This payment system is based on measurement of the costs of best practice rather than prices based on average cost.

The calculation methods for these are specific to each type of procedure and there is therefore not a single calculation method. A specific approach has been developed for each tariff designed from best clinical practice and availability of quality data (124).

► Rationale

The concept of the best practice tariff follows the publication of a *benchmarking* report in Great Britain in 2008 by the London *Office of Health Economics* (38). According to this report, *benchmarking* is defined as "a comparison of practices and levels of performance of organisations in order to identify opportunities for improvement".

Types of benchmarking

Four types of benchmarking can be distinguished:

- "internal" benchmarking which compares similar processes within the same organisation;
- "competitive" *benchmarking* which involves comparing organisations which are in direct competition. Payers can use the *benchmark* to create "pseudo-competitors" between organisations in sectors where traditionally there is limited competition. This type of *benchmarking* combined with relative performance based financial payments is called yardstick competition (23) and is used in DRG, HRG or T2A payments;
- "functional" *benchmarking* which involves comparing the practices of organisations within a sector with those of other sectors;[126]
- "generic" *benchmarking* which compares the practice of an external comparator representing best practice in each operation carried out by the organisation.

[125] This national tariff is mandatory and applies throughout the country for both day care and complete hospitalisation and to most external care procedures, for all care providers except for the independent treatment centres, ISTCs, which are paid for the contracted services provided.

[126] Day surgery processes are occasionally therefore compared with those in the aeronautics industry in terms of risk management.

Limitation of the British HRGs

The most widely used traditional *benchmarking* techniques (yardstick and functional) raise several problems:

- good practice is not identified and is only disseminated slowly. Dissemination may be particularly slow in the public sector in which the jobs market is less fluid and does not facilitate skills transfer between organisations.
- *Benchmarking* is usually limited to seeking to improve the practices of those sites which are furthest behind;
- most NHS care providers are not directly motivated by financial incentives (particularly public facilities or foundation trusts). Recognition within the organisation and the feeling of having produced good work may be more important. Financial incentives may then be counterproductive.

Several criticisms have also been made of the use of HRG reference costs to set the desirable cost level. These criticisms arise from the initial method used to calculate reference costs published in the United Kingdom in 1998, which was approximate because of the poor quality of the data collected.

- there is not considered to be a "natural comparator" to determine ideal practice and its cost. The comparator is therefore constructed artificially, which may be particularly complicated;[127]
- in organisations in which most costs are fixed, small differences in monies allocated by the statutory authorities may have large consequences on the financial well-being of the organisation;
- incentives drive the poorest performing working parties to avoid being in the "tail of the distribution" but do not encourage others to improve their practice or reduce their costs;
- many NHS organisations multi-task. The financial incentives introduced for a number of tasks drive them to focus on these areas, to the detriment of others, creating a "tunnel effect".[128] Multiple incentives may raise problems if they are unachievable or contradictory or if the incentive for a specific activity is incorporated into a far larger group.

Recommendations for the NHS

The authors of the report made a number of recommendations for the British NHS:

- using indicators which combined costs and quality. Quality should be assessed using the *case mix* (for example risk-adjusted mortality rates). A lack of quality indicator leads providers to offer care services at the lowest cost rather than efficient services;
- as even small financial incentives have large consequences on the operation of the organisation,[129] the incentive must remain moderate and then only increase gradually. Further data are needed on the impact of incentives;
- activities need to be identified in fine detail and incentives which can be directly linked to the activity should be prioritised;
- the total number of financial incentives for each organisation must be limited.

Overall, after reviewing the positive effects of mean cost based tariffs on efficiency, the British Department of Health highlighted the difficulty of producing a list of tariffs based on the most efficient clinical practices. It did, however, recognise the need to use more standardised tariff scales (125), particularly if best practice is to be adopted. This can improve both quality of care and

[127] It is therefore difficult to calculate the average cost of surgical procedures from the costs of all centres.

[128] Some NHS organisations therefore focussed exclusively on cataract procedures in order to reduce average procedure waiting times to the detriment of other surgical procedures.

[129] Because of the high fixed costs and costs outside of the control of the organisation.

efficiency. The example of day care compared with conventional hospitalisation is cited. Best practice must then be evidence-based and changes in tariffs must be gradual.

► Application to surgery

Day surgery is one of the areas in which *benchmarking* techniques are most easily applied. It involves well managed, reproducible, widely performed routine techniques for which variation in clinical practice is deemed to be low. In principle this make it possible to estimate standard use of resources, particularly in terms of time spent in the operating theatre (a cost estimate by operating theatre minute is generally used).

In Great Britain this qualitative and tariff *benchmarking* system is called the "*Best Practice Tariff or* BPT". The aim of the BPT is to provide structured tariffs to reimburse all providers in the same way, at the same time encouraging good quality practice. BPT has been introduced for some surgical procedures and to encourage the development of day care.

Introduction of BPT for two surgical procedures

BPT was first introduced in 2010 for cholecystectomy and cataract (53)[130] using the following principles:

- **for the treatment of cataract**, the determining factor of best practice involves treating patients effectively and non-piecemeal, carrying out all the preoperative investigations at the same time, using day surgery as the reference practice and ensuring that all of the follow up investigations are carried out on a single day two weeks after the procedure;
- **for cholecystectomy**[131]**,** best practice was determined from published evidence in the literature and the BPT was designed to encourage day laparoscopic surgery, which was deemed to be the best practice to be used (126). In order to establish best practice, an on site visit (direct observation and interviews with 150 DSU staff and patients) was made to centres carrying out day surgery and was used to retrace the patient's current management process (126), which was then compared with a recommended process (cf. appendix 3) which was required to cover 95% of the cases treated, although some flexibility was available in exceptional cases. The change in this procedure was intended to:
  - reduce redundant investigations (particularly blood tests),
  - reduce investigations bringing no benefit (for example cholangiography),
  - reduce urgent readmissions for cholecystitis/biliary colic;
  - better link day care with 23 hour stays and short stays, making the capacity flexible and enabling the operating theatre to be used in the afternoon with the most complex patients being able to remain overnight if necessary rather than be admitted to short stay by default,
  - ensure that each surgeon had carried out at least 200 procedures during the previous five years to ensure that he/she still mastered the technical procedures.

According to the British Department of Health, the introduction of these "best practices" would make management more efficient and increase patient satisfaction.

In terms of tariffs, rather than being calculated from average costs, the tariff used reflected the cost of best practice which could be located either above or below the average cost. As the desired practice, however, was day surgery, the national tariff would in principle be set below the national average cost as this, until that point, incorporated a proportion of more expensive conventional surgical cases (53).

[130] http://www.dh.gov.uk/health/2011/12/bpt-update/

[131] There were 49,077 cholecystectomies in Great Britain carried out between April 2005 and March 2006, 86% of which were planned and 14% of which were carried out during an urgent admission. Eight-four per cent were laparoscopic although there were large differences between regions (figures ranging from 50 to 90%). The national day surgery rate was 6.4%, although this figure was 50% in some regions and a 70% national rate was deemed to be achievable (126).

The introduction of the BPT was supported by other local measures, particularly with:

- default admission for any patient to day surgery rather than conventional surgery;
- recruitment of staff trained in day surgical practice;
- visits to the "best performing" DSUs by DSU staff from poor performing units.

In addition, the national tariff would apply not only to the surgical procedure but also to the pre- and post-diagnosis care and to the post operative follow up. If necessary, this involved breaking down the payment in order to promote the best care pathway between providers if this could be established from the evidence (125), in order where possible to incentivise care outside of hospitals (the "*unbundling tariff*" principle). This tariff method was only introduced for cataract surgery.

Each stage in the management is described for this disease in Table 8. Management is unbundled into seven stages. Stages 2 to 5 of care are included in the proposed tariff and stages 6 and 7 appear in a second tariff (124).

Table 8. Stages in the management pathway for cataract (124)

Stage	Description	Parts of the management
1	Initial diagnosis of cataract	Performed in primary care by a generalist physician or optometrist.
2	Confirmation of diagnosis and inclusion on list of surgical procedures	First external consultation visit.
3	Pre-operative assessment	
4	Cataract extraction (1st eye)	Procedure performed usually as day surgery although may in exceptional cases be carried out by conventional surgery.
5	Postoperative course	Review by a nurse, optometrist or ophthalmologist ideally within two weeks following the procedure.
6	Cataract extraction (2nd eye)	Procedure performed usually as day surgery although may in exceptional cases be carried out by conventional surgery.
7	Postoperative course	Review by a nurse, optometrist or ophthalmologist ideally within two weeks following the procedure. The tariff includes the cost of the patient consultation at this stage. Review after four to six weeks by an optometrist (this stage is not included in the tariff as it is deemed to be primary care).

Source: (124).

Extension of the system to other surgical procedures

The BPT was extended from 1st April 2011 to a list drawn up by the *British Association of Day Surgery* (BADS)[132] of 12 breast, hernia, orthopaedic and urology surgical procedures (cf. Table 9). The selection criteria for these procedures were based on (124):

- the large impact, measured by:
  - a high volume of more than 5,000 annual admissions,
  - large differences in practice between providers and national rates below those recommended by the *British Association of Day Surgery* (BADS),
  - a significant impact in terms of health results;
- evidence and clinical consensus available on the aspects of best practice whilst some differences were seen across practices (mostly relating to day surgery rates) between regions.

The tariff calculation method was based on a two stage calculation (124):

- the first stage involved establishing the desired proportion of day surgery and conventional hospitalisation;
- the second stage involved separating the conventional hospitalisation tariffs from day surgery tariffs whilst observing the following limitations:
  - the total cost of the two procedures could not exceed the baseline cost, i.e. before the BPT tariff was introduced (closed envelope principle),
  - the tariff for day surgery, deemed to be best practice, should be higher than conventional hospitalisation in a predetermined ratio,
  - the day surgery tariff should be no more than the tariff obtained by combining day surgery/conventional hospitalisation tariffs from the observed day surgery rate.

It can be seen (cf. table 8) that the day surgery tariff was consistently higher than the conventional surgery tariff for the same procedure.

Assessment of the impact of BPT on practices

Only one study assessing the impact of BPT was found (127). This is due to the very recent introduction of the system.

The authors endeavoured to estimate whether, for cholecystectomy, introducing the BPT:

- increased the proportion of patients treated by day laparoscopic surgery;
- without potential negative effects measured by:
  - patient selection (age or sex),
  - reduced quality (increased mortality and readmissions),
  - reduced productivity (changes in volumes of patients treated and put on a waiting list pending a place in day surgery to be released);
- without causing opportunistic behaviour to maximise profits from the introduction of financial incentives.[133]

From the Hospital Episode Statistics (HES) files interrogated for the period from 1 April 2007 to 31 March 2011 for cholecystectomy procedures,[134] the authors estimated the effect of BPT on some result variables using the Difference-in-Differences or DID methodology.[135] The control group

[132] Day surgery was deemed as necessary for most of the procedures in this list. Cf. http://www.daysurgeryuk.net/bads/shop/shopdisplayproducts.asp?search=yes&bc=no:

[133] Such as patients being referred for day laparoscopic surgery without changing the actual care delivered.

[134] Codes OPCS-4: J183, J188, J189 and J268.

[135] Quasi experimental method used in econometrics. This is used to measure changes produced by a specific measure. The DID estimator represents the pre post-measurement difference for subjects being measured and for the control group. Cf. http://en.wikipedia.org/wiki/Difference_in_differences

included 1,463,335 care episodes with cholecystectomy and the test group contained 199,565 day surgery cholecystectomies.

The available data for the number of procedures carried out in day surgery and the mean length of stay, the number of procedures carried out by laparoscopy. Patient complexity was represented by the number of comorbidities. Death rates and 30 day readmission rates were also available together with the waiting time before the procedure (median and mean).

The analysis showed:

- that day surgery increased the proportion of cholecystectomies over the period 2010-2011 by seven percentage points (DID 0.069; $p < 0.01$) accompanied by a fall in mean length of stay between the two groups;
- on the other hand, there were no changes in terms of use of the laparoscopy but more open surgery was carried out (DID 0.005; $p < 0.01$);
- for adverse effects:
  - there was no statistically significant increase in the number of deaths or readmissions. Patient selection measured by age showed a small significant negative effect of patient age under 70 years old (DID - 0.482; $p < 0.1$) therefore suggesting less patient selection and no effect on the proportion of patients over 70 years old (DID - 0.0002; not significant),
  - the introduction of BPT had an impact on waiting time which increased (DID corrected for change in trend 14.014; $p < 0.01$) and on coding strategies for comorbidities. More than one out of four patients (DID corrected for change in trend 0.267; $p < 0.01$) were coded with comorbidities;
- these differences varied by region. In those which already had excellent or good cholecystectomy rates the day surgery rates increased significantly (DID 0.080; $p < 0.01$), patient age decreased (DID - 0.6; $p < 0.05$) and the proportion of men treated increased (DID 0.010; $p < 0.1$). Comorbidities increased (DID 0.289; $p < 0.01$), although the conversion rate to open procedures fell (DID - 0.005; $p < 0.01$).

  The readmission rate fell in poor performing regions (DID - 0.012; $p < 0.05$). The waiting time increased regardless of region.

Table 9. List of specialities for which the best practice tariff applies in Great Britain

Surgical subspeciality	Procedure	Target BADS rate	Actual observed rate	Rate used to calculate the tariff day surgery	HRG codes	Day surgery tariff	Conventional surgery tariff
Breast surgery	Sentinel lymph node: identification and excision	80%	48%	80%	JA06Z, JA07A, JA07B, JA07C, JA09B, JA09D	£1,376	£1,076
	Simple mastectomy	15%	2%	15%	JA07B, JA07C	£2,385	£2,085
General surgery	Umbilical hernia repair	85%	66%	85%	FZ18A FZ18B FZ18C	£1,118 £1,126 £1,124	£818 £826 £824
	Primary inguinal hernia repair	95%	61%	95%			
	Recurrent inguinal hernia repair	70%	49%	70%			
	Primary femoral hernia repair	90%	62%	90%			
Gynaecology/urology	Female incontinence procedures	80%	31%	45%	LB23Z	£995	£695
Orthopaedic surgery	Therapeutic shoulder arthroscopy - subacromial decompression	80%	51%	-	HB62C	£2,253	£2,053
	Hallux valgus procedures with or without internal correction and correction of soft tissues.	85%		85%	HB34E HB35B HB35C	£1,279 £1,489 £993	£1,079 £1,289 £79
	Dupuytren's	95%		95%	HB53Z	£2,297	£2,097
Urology	Endoscopic resection of prostate	15%	1%	15%	LB25B LB25C	£2,030 £1,863	£1,880 £1,713
	Laser resection of prostate	90%	16 %	60%	LB25C	£1,863	£1,563

Source: (124, 128).

* *British Association of Day Surgery*.

2.6.2 Bundled Payment

The payment by procedure or DRG widely used in the United States has several limitations highlighted in 2008 by the *Medicare Payment Advisory Commission* – MedPAC (129), which led it to recommend a new payment system based on care episodes (*Bundled Payment*). This payment system was examined experimentally in different programmes (particularly Prometheus, Geisenger's ProvenCare) notably in surgery and was then recommended in the patient protection and affordable care law of 2010.

► Rationale

According to MedPAC (129), the tariffs in the United States paid for a service which had a relatively narrow scope and on each occasion only involved a single care provider (physician consultation, laboratory tests, surgical procedure in the hospital, etc.) leading to an uncoordinated "silo" approach to care. This payment method encouraged an increase in care volumes:

- because it did not take account of all of the services provided to the same patient and therefore fragmented the care and the risks of duplicated investigations, particularly as the providers were paid in isolation;
- because it paid the provider for each new episode regardless of the level of care provided in the initial episode. In a readmission, for example,[136] the hospital received the same payment as for the initial admission;
- because it often paid the most technical procedures more generously, even if alternative, less technical and less expensive care was available for the same or even better health result.

In addition, for hospital doctors, the process functioned as if the services used were free as they did not take on the financial risks of use of resources due, for example, to keeping patients in intensive care departments or using expensive medicines. They were not therefore encouraged to use the most efficient practices (130). A bundled payment which included payment of the hospital and doctors would therefore converge the objectives and incentives towards more efficient practices.

In order to resolve these difficulties, several performance-based payment systems (P4P) were set up although these maintained or even increased the piecemeal approach of care providers and their tendency to work alone according to their own objectives, which may also have been to the detriment of other providers or to patient interests. Care coordination was not promoted which could generate wastage or duplicates (131).

An alternative system called "*Bundled Payment*" was therefore proposed in 2010 in the American *Affordable Care Act* (132).

► Principles

Some payment methods for care providers in the United States already grouped several procedures together. This is the case for:

- the prospective DRG-based payment which is a bundled payment, as it is a single payment for most of the services and costs involved in the stay;
- the "*global surgical fee*" received by American surgeons which covered services provided by the surgeon relating to the procedure.

The principles of *Bundled Payment* goes far further as it offers a single payment for all of the care the patient requires in a given morbid episode rather than payment of suppliers for each procedure performed in isolation (132, 133).

[136] A stay is generally deemed to be a readmission if it involves admission within 30 days after discharge for the same disease.

This payment therefore extends to several care providers which have to coordinate between themselves and share an overall payment, which is less than the sum of the payments made previously.

The suppliers agree a joint contract together with the payer (i.e. *Medicare*, *Medicaid* or a private insurance company which has predetermined the costs of the care episode from its databases (134).

Bundled Payment is one of the possible components of *performance-based bundled payment* (P4P). The following methods are used to set the amount allocated by the funder:

- the average cost of the most appropriate medical care for the patient's condition is determined from clinical practice guidelines or expert opinions (131);
- the care providers then receive a fixed payment covering all of the stages of the management for each patient and each given episode of care (135);
- the providers share this amount between them depending on predetermined contractual undertakings.

By offering a global price for a procedure this system replaces procedure or activity-based payment for hospitals.

It pays providers for the practice recommended by professionals. It promotes a "patient-centred approach" taking account of the patient's overall management, both over time and between providers.

This payment system also offers the option of some variability between patients but generally reflects the average cost per patient for a set of services. It therefore needs to be supplemented covering the financial risk because of the existence of *outliers* (for example, complications) using a "*stop loss*"[137] contract intended to reduce risks of financial losses both for the insurer and for the care centre (134).

The aim of this new tariff principle is therefore (129, 132):

- to increase the efficiency of management by increasing the quality of health services provided and their volumes and reducing costs by removing ineffective or duplicated health services;
- to encourage coordination of providers by making them jointly responsible for the overall cost of care (136). The care providers concerned can then develop new means of allocating resources between themselves.

► Operation

in the United States, a few insurers had put in place bundled payments from the start of the 1990s (136) for coronary artery bypass and cataract surgery. An experimentation phase was also run between 2008 and 2011 for pilot sites. The two main experiments were the Prometheus and Geisenger's ProvenCare programmes (135). These are described below.

Initial experiments for coronary artery bypass and cataract surgery tariffs

The first care episode payment experiment was conducted by *Medicare* from 1991 to 1996 (130, 136-139) in seven hospitals over the country involving payment of the hospital for the care episode and for cardiac surgery doctors (coronary artery bypass[138]).

The care episode involved both the services delivered during the hospitalisation[139] and doctors' expenditure (pre- and post admission), together with 72 hour readmissions although no payment was organised for particularly expensive "*outlier*" cases.

[137] Insurance contract intended to limit subscriber losses. "Risk sharing contracts" can also be set up. These are an alternative solution to payment for the "pure" care episode. For example, the payer and providers contracting together may establish a target price such as $30,000 per patient and agree on risk sharing in which the care provider assumes the risk for only part of the loss or gain on a patient.

[138] DRGs 106 and 107.

The hospitals and medical centres in the experiments were permitted to share and keep surpluses. The hypothesis made was that with this new payment system doctors would be encouraged to increase their efficiency of care in the management of coronary artery bypass grafting. The experiment lasted initially for three years (1991-1994) at four sites. It was extended until 1996 for three additional facilities.

The Prometheus programme

The Prometheus programme[140] was developed in 2006 by Prometheus Payment Inc. (132).

The following stages were used to set the tariff:

- each procedure attracting a bundled payment was classified in an ECR (*Evidence-informed Case Rates*) which included hospital and non-hospital care associated with the procedure;
- a cost was calculated for all of the components of patient management (including laboratory procedures, medicines, imaging procedures and rehabilitation after surgery) referring to optimal medical practice (using clinical guidelines, evidence or expert opinions) and allocating values to these costs using the average costs found in the health insurance systems;
- the cost was adjusted for risk, based on the severity and complexity of the patient's management (140). Prometheus distinguished two sources of cost variation related to risk (132, 140) :
  - the likelihood of risk existing in the patient. In this case the concept of risk is the insurance concept, i.e. the likelihood that a random event would occur in a patient,
  - development of a "technical risk" due to the care procedure. Unlike the former, this risk can be controlled by the provider and varies depending on its skills and the care process it uses. The existence of a technical risk leads to avoidable complications.

The following payment methods were used for providers:

- the overall bundled payment tariff was set below the tariff which the providers would have received for an activity- and/or GHS-based tariff;
- The bundled payment was calculated from historical observed costs including the cost of avoidable complications.[141] the cost of avoidable complications in the United States was calculated to be approximately 20% of the total cost of hospitalisations and short stay procedures (140). The care episode tariff includes the cost of avoidable complications but only up to a certain level;[142]
- if the avoidable complication did not occur the providers could keep the tariff surplus (bonus). Payers and care providers could therefore adjust these parameters within the negotiated contracts;
- in addition to encouraging a reduction in avoidable complications the payments received could include other incentives (good clinical practice, care result, etc.);
- the episode based payment was then re-distributed to all of the providers. The providers were then incentivised to provide joint quality care.

Prometheus was first piloted on three sites, both by the payers which included the company health plans[143] and also the health insurance funds for independent workers and voluntary health organisations (132, 140).

The programme had defined a total of 21 care episodes involving chronic diseases such as diabetes and also acute care including 10 episodes relating to conventional surgical procedures

[139] Including capital costs and medical education expenditure.

[140] *Acronym Provider Payment Reform for Outcomes Margins Evidence Transparency Hassle-reduction Excellence Understandability and Sustainability*. This programme was funded by the *Commonwealth Fund* and by the *Robert Wood Johnson Foundation*.

[141] *Potentially Avoidable Complications*.

[142] Warranty principle

[143] i.e. "*Independence Blue Cross*" together with "*Crozer Keystone Health System in Pennsylvania*" involving total hip and knee replacement, "*Employers' Coalition on Health*" in Rockford, Illinois involving diabetes, hypertension and coronary artery diseases, "*Priority Health-Spectrum Health*" in Michigan involving diabetes, heart attacks, asthma, lung diseases and colonic resection (140).

(coronary artery bypass grafting, colonic resection, bariatric surgery, hip replacement, knee replacement) or day surgery (colonoscopy, cholecystectomy, hysterectomy, knee arthroscopy and angioplasty).

Geisenger's ProvenCare

This bundled payment system was introduced in Pennsylvania. It was developed by Geisinger as part of its integrated care system (HMO)[144] to pay for coronary artery bypass grafting and was set up from February 2006 (142). The promoters of the system postulated that if expert consensus guidelines[145] were scrupulously followed the complications would be rarer and the management costs would be lower.

The following different stages were used to establish the tariff:

- the care episode was broken down into 40 phases which had to follow *guidelines* on the pre-operative, per-operative and post operative phases up to 90 days after the procedure;
- to determine the level of bundled payment, Geisinger calculated all of the care costs provided routinely for each stage included in the recommendation, adding in a payment equivalent to half of the cost of the observed complications to the tariff (135, 144);
- where applicable the doctors retained the ability to deviate from the guidelines but had to justify their reason.

The principle used by Geisinger was transfer of financial risk from the payer to the care provider (142) The payer was therefore released from the problem of financial risk in the event of complications. Conversely the professionals received the equivalent of a bonus if the patients did not have complications as the sum paid included a component intended to cover the additional costs.

The interest in this programme increased during 2009 and was quoted, for example, by Barack Obama, the President of the United States, in some of his discussions on reforms of the health system.

► Assessment of care episode payment experiments

The impact of care episode payment experiments on efficiency has been assessed in a few studies. These are described for each of the experiments discussed previously.

Medicare: coronary artery bypass grafting

The initial *Medicare* experiment on coronary artery bypass grafting was assessed in four studies (130, 139, 145).

The *Health Care Financing Administration* carried out a qualitative assessment of nine different (137) dimensions in 1998 and was combined with an impact study on the costs of management, the main points of which are summarised in Table 10.

Overall, HCFA estimated that the experiment was positive overall both in terms of feasibility and acceptability and in terms of the potential health cost savings which *Medicare* could achieve.

The experiment, however, had been designed in a context of competition and *Medicare* expected changes in market share as a result. Nevertheless, participation in the experiment did not increase the market shares of the facilities selected to take part. There were also technical difficulties with data collection.

[144] Founded by Abigail Geisinger in 1915, the *Geisinger Health System* is an integrated care system (*Health Maintenance Organisation*) located in the centre and north of Pennsylvania representing 2.6 million people. It includes both the care offering represented by 740 doctors, 200 of whom provide primary care,the remainder are specialists, and three hospitals providing acute tertiary and quaternary level care (specialist hospital care), as well as a health insurance plan which covers 30% of people in the area, the others falling under different payers, (i.e. *Medicare*, *Medicaid*, *Capital Blue Cross*, *Coventry, Highmark*) (141).

[145] Sometimes called "*Proven Care Benchmarks*", these are obtained from the guidelines drawn up by the *American College of Radiology* and the *American Heart Association* (ACC-AHA) (143).

Table 10. Assessment of the *Medicare* experiment on coronary artery bypass grafting (130, 137)

Dimension assessed	Results	Summary
Acceptability and feasibility of care episode payment	The experiment was only conducted in seven hospitals although 209 facilities voluntarily confirmed their will to take part in this type of experiment. The HCFA files were used to create this payment model.	Positive
Impact on coronary artery bypass grafting volumes delivered by the hospital and differences in length of stay.	Two facilities showed a statistically significant increase in growth in volumes and volumes fell in three facilities. All of the hospitals found a reduced length of stay (from 0.5 to 1 day per year, similar to the national rate).	Reserved
Reduction in total expenditure for the hospital, insurer and programme beneficiaries.	- $42.3 million fall in expenditure for patients undergoing coronary artery bypass grafting (including expenditure for up to 90 days after the hospitalisation), representing a fall in total expenditure of approximately 10% (this was $438 million). - 86% of the reduction was due to reductions from contracts between *Medicare* and hospitals for hospitalisations, 5% over the period following the hospitalisation and 9% from changes in market share towards less expensive centres. - Beneficiary co-payments fell by €7.9 million. - Three of the four hospitals involved in the initial programme found changes in practices resulting in cost reductions (in nursing care, with designation of a named nurse throughout the stay, in expenditure on medicine by substitution with less expensive and in intensive care -10 to 40%). The hospitals' profit margins were positive but fell for two university hospitals.	Positive
Impact in terms of patient health results.	The national mortality rate one year after operation for *Medicare* patients adjusted for risk fell from 6.4% to 5.4% between 1990 and 1996. The corresponding figure was 4.6% over the period 1991-1996 for the seven facilities which took part in the experiment. Statistically significant differences in terms of reduced mortality were found for some facilities (adjusted for severity and other risk factors). Two sites with morality rates above-the average reported falls during the experiment. A small fall in complications was also found (CI = 90%). The complexity of the cases treated increased (more angioplasties were performed).	Positive
Impacts in terms of the appropriateness of care delivered.	Care was appropriate in 97.7% of patients considering that there was no alternative through angioplasty and 72.7% of procedures were appropriate when considering that angioplasty was available as an alternative (on expert opinion).	Uninterpretable

Table 10 (continued): Assessment of the *Medicare* experiment on coronary artery bypass grafting (130, 137)

Dimension assessed	Results	Summary
Consequences on selection of hospital by patients, satisfaction and the competitive environment	36% of patients were aware that they were admitted to a hospital taking part in the experiment. 32% of patients had chosen the facility for this reason. The patients were aware of the reduced cost to themselves (reduced invoicing). A statistically significant proportion of patients were highly satisfied with the skills of the nurses and length of stay. The competitive environment was tightened during the experiment due to distribution of coronary artery bypass grafting techniques to a larger number of hospitals leading the facilities to use more aggressive marketing strategies and value quality of care in the experiment. One facility lost market share during the initial years of the experiment.	Reserved
Management of payment division between doctors and hospitals	The health professionals (surgeons, anaesthetists, cardiologists and radiologists) received payments directly from the hospital with which they were contracted (and not from *Medicare*). This payment was capitation based, i.e. it was not related to the number of patients treated. Surpluses were not only shared in monetary terms. In some facilities they also for example included extension of operating theatre working hours for surgeons, or by the hospital paying the nurses or assistants with whom the practitioners work and whom were initially paid by the practitioners.	Positive
Difficulties experienced in reimbursement for care by the government	Delays in payments to professionals and facilities were occasionally seen, generating "*cash flow*" problems. The patient co-payment system was simplified because of the experiment as they only had a single payment to make, compared with several payments and different payment rates previously.	Negative for professionals, positive for patients.
Achievement of objectives	- The satisfaction of participants in the experiment was limited, some criticising *Medicare* for not sufficiently promoting the experiment and not having organised exemption from the co-payment for people without insurance. - Following the experiment the facilities generally signed bundled payment contracts for cardiac surgery. - The experiment did reduce costs in three out of four facilities which had microcosting data. - Alignment of the incentives between hospitals and surgeons was deemed to be one of the key points in changing surgeons' behaviour. - The observed increase in case severity may be due to more systematic coding of complications by the facilities' quality assurance departments. - The hospitals' general dissatisfaction was due to difficulties in collecting data and invoicing (unrecoverable costs not funded by *Medicare*), as a result of the introduction of informatics procedures and programmes to collect the data.	Fairly positive

According to Cromwell *et al.* (139), during the initial phase of the experiment, expenditure by *Medicare* and its beneficiaries fell during the first two years (1991-1993) by $17.2 million (- 15.5%). The fall in expenditure was mostly due to hospitalisation costs (85 to 93% of the fall).

The expenditure on patients in receipt of *Medicare* fell by $1.8 million (139), mostly as a result of *Medicare* negotiating lower tariffs for services.

In addition, the Wynn assessment (145) continued throughout the programme showed that the savings made by *Medicare* were $52.3 million, $42.3 million of which was due to contracts made with the hospitals and $7.9 million dollars due to a fall in co-payments.

The efficiency gains achieved by the hospitals were not uniform and were mostly due to a fall in care costs. These varied according to DRG and hospital (from - 2 to 23% depending on the case[146]) (137).

According to the interviews with professionals, these gains were mostly due to changes in practices and protocols. The hospitals, for example, introduced a new protocol for management 24 hours after the procedure in the intensive care unit with shorter acting anaesthetic agents, in order to promote fast patient recovery and their prompt return home. The length of stay therefore fell by 14 to 32% depending on the facility. Efficiency gains were also attributable to nursing care (improved patient flow), laboratory procedures and medicine costs.

Following this experiment, the HCFA announced that it was carrying out other similar experiments.

Geisenger

The assessment of the Geisenger programme in 2007 by Casale *et al.* (142) showed that before the introduction of the new payment system, only 59% of patients received the defined care process. This rose to 100% after three months, 86% between three and five months, although again rose to 100% six months after the new system was put in place. Adherence to the ProvenCare process by professionals was statistically significant ($p = 0.001$[147]).

In terms of financial results, the before and after study (including 137 patients in 2005 and 117 patients in 2006) (142) showed a shorter length of stay (5.3 days in the ProvenCare group compared with 6.3 days before the experiment) and a 5% reduction in hospital costs. The 30 day readmission rate fell from 7.1% to 6%. Nevertheless these results were obtained on too small a number of cases and were not therefore statistically significant.

The results were deemed to be satisfactory for coronary artery bypass grafting and the number of procedures funded by this method was extended to hip replacement, cataract surgery, use of erythropoietin, bariatric surgery, angioplasty in acute myocardial infarction and perinatal care. (146)

Prometheus

No true assessment of the efficiency of the Prometheus programme was carried out. This is due to the fact that the payment system was still under construction in the experimental sites. Two studies were found, the first (131) assessed the cost of avoidable events and the second (132) examined feedback of experiences from the pilot sites which developed this type of payment.

In the study conducted in 2005-2006 by Rastogi *et al.* (131), the burden of avoidable events and impact of potential payment for the care episodes were assessed by patients from a private commercial insurance company who underwent knee or hip arthroplasty. The episode involved both expenditure on care delivered during the procedure and also expenditure for health professionals, medicines and other types of expenditure. The total costs for patients (2,076) who underwent hip arthroplasty was $54.9 million including $7.8 million for avoidable events (14%).

[146] Not adjusted for inflation.

[147] Using the *Cochran-Armitage Trend test*.

3,403 patients underwent knee arthroplasty at a cost of $93.3 million and $12.7 million for avoidable events (14%).

The study published by Hussey in 2011 (132) examined the feasibility and merits of Prometheus through a qualitative survey using interviews (between 2009 and 2011) with programme pilot sites. Several findings emerged from this survey:

- **difficult application in a compartmentalised care offer system**: one of the main limitations of the payment system was that it involved starting from a common point whereas the care providers were often compartmentalised. It was therefore difficult to implement from an administrative point of view (132). Sharing payments and risk was difficult, for example, between private doctors and hospital facilities;
- **the complexity of the payment system introduced**: the bundled payment was complex and therefore had to be incorporated into an equally complex care system. Prometheus was believed to have added an additional level of complexity and the pilot sites found it difficult to apply ECR to their own informatics system (132);
- **in order to optimise payment, reorganisation of care was required and was often considered to be excessive by the parties involved.** In order for bundled payment to improve quality for the same or even lower cost, substantial changes in how care provision was delivered would have to be made and it is unlikely that the providers would be able to do this (132).

In conclusion, the authors highlighted that the benefits of bundled payment appeared to be more theoretical than actual. The results from Prometheus pilot studies also showed delays in introduction due to the complexity of the system. As such, in May 2011, no pilot sites had been able to use Prometheus as a payment system for providers (132).

► Assessment of the feasibility of extending bundled payment to *Medicare*

Bundled payment was firstly used by the private insurers. It is currently being used in *Medicare* by encouraging experimentation.

Spread of bundled payment through the American Health Insurance companies.

In order to establish how bundled payment tariffs were spreading throughout the United States, the GAO (*Government Accountability Office*) (136) carried out a survey between March and December 2010 on the five main private health insurers (*Aetna*, *Cigna*, *Humana*, *UnitedHealth Group* and *WellPoint*), combined with interviews with medical learned societies which had a view on bundled payment tariffs.

The five insurers reported that:

- They had used the bundled payment system for around twenty years but only in organ[148] or bone marrow transplantation. The payments generally included hospital care, payments for doctors and all auxillary services for the entire care episode (initial assessment, provision of the organ, hospitalisation, readmission and follow up for 30 to 365 days depending on the insurer). Use of services was assessed from the care pathway. Transplantation was chosen because it is a very expensive procedure for which the insurer wanted to set a cost limit. There was no adjustment for case severity although four of the insurers made financial arrangements for *outliers*. The payment was by day for the *outliers*;
- only two insurers had developed care episode payments for other procedures: bariatric surgery in 2009 in 22 States and coronary artery bypass grafting in one State;
- three insurers had agreed contracts with centres of excellence in order to encourage users to refer to hospitals carrying out large volumes, high quality practice and to promote efficiency. In this situation, the hospitals agreed to reductions in payments as they were guaranteed high volumes.

[148] Heart, liver, kidney and pancreas.

The payer contracted directly with the hospital and doctors involved who either worked for the hospitals or had agreed contracts[149] with them. In most cases the dossiers were processed manually. The patients had a "*case manager*" in order to help them choose the most appropriate centre and facilitate relations between the care provider and insurer.

Overall, bundled payments were used by private insurers for complex procedures clearly in the context of an insurance approach intended to reduce the financial risk of care. The procedures were also chosen because clearly defined management protocols were available.

Brakes and drivers to extend the system for *Medicare*

The five main private insurers and medical experts also identified brakes and drivers for *Medicare* using the principle of care episode tariff setting in the United States (136).

The drivers identified by the people questioned were:

- good knowledge of the principles of the care episode tariff system by providers from experiments and gradual acceptance;
- *Medicare*'s share in the health care system which is larger than that of the private insurers (over 50% of hospital activity). *Medicare* therefore has considerable incentivising power and can deliver a learning effect for all the parties involved;
- the bundled payment improves efficiency by promoting practice of excellence and reducing the number of redundant procedures.

The brakes were:

- manual processing of dossiers and the need to negotiate with each facility;
- the difficulty in agreeing a single contract for all of the parties involved in care;
- the absence of a standardised definition of the care episode. According to the expert doctors questioned, the bundled payment could not apply to many procedures which did not have a standardised management protocol;
- the "*case managers*" appeared to be essential in the process whereas *Medicare* does not have this type of staff.
- public registers on the quality of transplantations carried out did not exist although *Medicare* could help to set up this type of register;
- the payment is the same for all providers, whereas the cost of care for Medicare is characterised by different exemptions or patient co-payments depending on the providers, which could represent a technical application difficulty;
- the selection of centres of excellence could raise a problem as *Medicare* must theoretically approve all care providers once they meet specific conditions to take part in the programme.

Definition of the scope of bundled payment

The scope of the bundled payment was still difficult to define, particularly in terms of payment for medical procedures performed after the hospitalisation. In a 2010 study on 600,000 *Medicare* stays for surgical joint replacement procedures, *Avalere*[150] (133) demonstrated:

- that the care episode could be deemed to have finished in 90.8% of patients 30 days after the procedure;
- that on the other hand, 9.2% (including 7.2% between 31 and 60 days) of patients had longer care episodes due to the procedure. *Avalere* therefore highlighted that the funding of readmissions up to 30 days could be inadequate for these patients;

[149] *Hospital-affiliated practice plans*.

[150] American strategic health consulting company

- in addition, the average length of the care episode was 15 days, although the median was four days.

The consultancy company therefore questioned the appropriateness of considering rehospitalisation by setting a bar at 30 days, which did not in fact remotely resemble the reality of the clinical situation. It therefore suggested examining the possibility of creating two types of care episode tariff depending on patient severity and recommended that geographical differences in practices be taken into account.

Factors to consider before developing a bundled care payment system

Following the difficulties they found, the AHA (138) listed a number of questions which *Medicare* should ask before setting up a bundled payment system:

1. In what conditions is it possible to use a bundled payment system?
2. Who are the providers and services who should be included in the bundled payment?
3. How are accounting data from the providers obtained?
4. What is the time period covered by the bundled payment ?
5. What are the necessary organisational requirements to administer the bundled payment?
6. How should the payments be organised?
7. How should the bundled payment be adjusted for risk?
8. What information is required to set up a bundled payment?

► *Medicare* Position

The position of the *Medicare Payment Advisory Commission* (129) is very much in favour of developing bundled payment experiments. From 2008, therefore, it recommended a gradual shift towards this type of payment for a large number of medical procedures.

In 2009, *Medicare* set up an experimental bundled payment programme lasting three years for acute care hospitalisations (cardiovascular and orthopaedic procedures) on 15 sites (134). The participating facilities had to have high activity volumes in order to test the possibility of benefiting from economies of scale. The payments involved both parts A (hospital care) and B (medical care, external care, medical equipment and other medical services) in the *Medicare* tariffs, together with the tests performed before hospitalisation, but not care following hospitalisation. *Medicare* shared the savings made with the participating sites and patients.

In 2010 and 2011, as part of the *Patient Protection and Affordable Care Act*[151], the CMS published[152] a paper encouraging the development of bundled payment initiatives from January 2013 (134, 136). The CMS was to encourage voluntary experiments with care providers over five years. The examples quoted were coronary artery bypass grafting and hip replacement.

In applying this system, the providers were remunerated on the basis of payment by procedure, although at a negotiated reduced tariff. At the end of the care procedure the total payments made for the episode were compared with the target single payment for the episode. If the total of the payments made was less than the target, the care providers shared the difference. The CMS proposed four models:

- **Model 1:** the care episode is a short stay hospital admission. *Medicare* then remunerated the facility on the basis of the prospective payment for hospital stays (*Inpatient Prospective Payment System*) with a deduction (from 0% in the first year to - 2% in year 3). Day care was paid using the MPFS scale. Hospital professionals and others could share the gains made from improved coordination of care;

[151] Passed on 30 March 2010.

[152] CMS, *Fact Sheet*, 23 *August* 2011, *Bundled Payment for Care Improvement Initiative*.

- **Model 2:** the bundled payment combined the hospital stay payment and the post-hospitalisation phases (from 30 to 90 days after discharge). The bundled payment included all services used during the hospitalisation and those associated with readmitting the patient, together with laboratory tests, funding for equipment, prostheses and other medical devices. The tariff reduction was - 3% for stays between 30 and 89 days and - 2% for stays over 90 days;
- **Model 3:** this only involved the bundled payment after hospitalisation and included all services invoiced after the hospitalisation including readmissions;
- **Model 4:** this included only the acute hospitalisation phase and possibly readmissions, whether or not this involved doctors from the hospital facility. In this case the doctors do not invoice *Medicare* for their services through the MPFS scale and are remunerated by the hospital for the care episode. The reduction against the initial tariff was set at less than 3%.

The agreements made with the professionals could also include ways of sharing profits between providers. This bundled payment could also include incentives to increase the coordination, quality and efficiency of care.

Key points

In order to overcome the limits of activity-based tariffs, some countries have sought to find a tariff model which improves efficiency and quality of care.

In order to do this the tariff model used must depart from the principle of cost-based pricing and use tariffs appropriate for the desired aim. The term used for this is normative pricing.

Two types of normative pricing have very recently been developed and applied to day surgery. These are the Best Practice Tariff introduced in the United Kingdom and the Bundled Payment tariff in the United States.

1-Best practice tariff

The principle of the best practice tariff was designed in Great Britain to encourage providers to offer high quality, cost-effective care. It differs from activity-based tariffs which represent the average cost. This payment system is based on assessing the cost of excellent practice, or as a minimum, good practice.

The *Best Practice Tariff* was introduced in 2010 for two day surgery procedures and extended to 12 additional procedures in 2011.

- ***Principle***

This new tariff method for day surgery is a true paradigm shift compared with the same average cost tariff used until that point in Great Britain:

- **it restores two different tariffs for day surgery and conventional surgery;**
- **it calculates cost not on the basis of the average observed costs in the facilities but from the most efficient practice (day surgery occasionally combined with an operating technique or organisational method for patient care);**
- **it sets tariffs for day surgery at a higher level than for conventional surgery taking account of the achievement of the target objective (national day surgery rate to be achieved).**

The BPT therefore combines a desire for efficiency with the introduction of a tariff incentivisation process designed to achieve a target rate.

- ***Assessment***

The impact of the BPT in the United Kingdom has only been assessed in one study. This shows that BPT had an impact on day surgery cholecystectomy rates although these results are limited to one procedure and were only analysed over a short period of time. In addition, some negative effects were found from the BPT system, particularly increased waiting times and changes in coding for comorbidities. In addition, increased use of laparoscopy which was desired was not always seen.

2- Bundled payments

As the activity or procedure-based tariffs used in the United States paid for a service with a relatively narrow scope and there was no coordinated approach to care encouraging increased procedures, MedPAC (*Medicare Payment Advisory Commission*) proposed in 2008 to experiment with a new tariff model, the bundled payment.

- ***Principle***

The principle is that of a single payment for all care which the patient requires during a given morbid episode, rather than paying providers for each procedure performed in isolation.

The payment has extended:

- **to several care providers who have to coordinate with each other and share an overall payment;**
- **the overall payment is less than the sum of the previous payments in isolation;**
- **the bundled payment generally covers remuneration for random risks although the costs of technical risks (avoidable complications) are paid for by the care providers.**

The providers agree a joint contract with the payer (i.e. *Medicare*, *Medicaid* or a private insurance company which has already assessed the overall cost of the care episode from its databases.

- ***Experiment***

This system underwent experimentation and was assessed in three programmes: *Medicare* (in the 1990s for coronary artery bypass grafting), the Prometheus programme in 2006 for different health plans and 10 surgical procedures and Geisenger's ProvenCare from 2006 in an integrated care system for coronary artery bypass grafting.

- ***Assessment***

The bundled payment system potentially has advantages in terms of efficiency and produced promising results in the experimental sites, although there is limited evidence supporting its theoretical assumptions and this is based on the oldest experiments.

On the other hand, practical difficulties were found in how it was implemented. These were mostly administrative (information collection, coordination of providers, etc). In order to solve these, the system has to be put place gradually and supported by an initial experimental period.

For surgery, the system is particularly beneficial for expensive procedures or those which involve a large number of care providers who need to coordinate with each other (e.g. management for coronary artery bypass grafting). Experiments were carried out, however, for some day surgery procedures in the Prometheus programme. The merits of bundled payments to set day surgery tariffs are based more on the ability to define the most appropriate procedure, the stages of management and the patient's clinical pathway, and then to establish its cost. The bundled payment also has the advantage of being an incentive to improve quality if, for example, it includes readmissions at 30 days.

2.7 The relationship between tariff models and efficiency

Day surgery must be developed in conjunction with quality and efficiency objectives (cf. DGOS/R3 instruction No. 2010-457 of 27 December 2010). The tariff measures should therefore both increase day surgery and also improve its efficiency. In this part of the report we examine firstly the way in which activity based tariffs should be set overall in order to improve efficiency (2.7.1). We then assess the type of efficiency which the current day surgery tariff improves (2.7.2) and then consider the options open to the decision-maker to overhaul the tariff model for day surgery in France (2.7.3).

2.7.1 Activity-based tariffing is designed to improve efficiency

As highlighted in the Inspection générale des finances (IGF [French General Inspectorate for Finances]) 2012 report[153] (33), the exact role of activity-based tariffs is ambiguous. According to IGF, there are two possible ways of thinking.

- the first is to view tariff systems as resource allocation instruments in a budgetary context. In this situation the tariffs need to be funding instruments which guarantee that the closed ONDAM envelope is respected. The ENCC cost ranking can then be used to set the differential costs between the GHS. The GHS tariff takes account of this ranking, at the same time including ONDAM's macroeconomic constraints. On this basis of thinking:
  - the principle of tariff neutrality must be observed,
  - corrections for public health policies or incentives towards a specific practice would be removed, as the tariff system would only be designed to distribute funding equitably between facilities and not to guide financial behaviour.

  According to IGF this initial approach, however, is soon found to have its limitations by erasing any price signal. The calculated tariffs which only take account of budgetary restrictions no longer represent the underlying financial reality of care provision costs. If used, this model would need to be supported in parallel with mechanisms to incentivise productive efficiency;
- in the second model the tariff systems have to be designed as funding instruments which prioritise an efficiency target. T2A would lead its facilities to improve their productive efficiency. In this situation:
  - standardised information collection on medical practices and costs (sample representivity, reduction in the time difference between costs and tariffs, harmonisation of analytical accounting, etc.) should be improved,
  - tariffs should be set at the efficient cost, i.e. the cost deemed to be the minimum profitable cost for a centre working under optimal conditions. The IGF considers two methods to calculate efficient costs:
    - using values from existing standard good medical practice or those to be established by HAS,
    - using a statistical method to calculate the efficient cost.

The first option has limitations as it involves complex, time consuming work for all medical or surgical procedures. HAS is also currently developing best practice references rather than good practice. The statistical approach is easier. In this situation, IGF proposes that in order to calculate the efficient cost, the mean cost is no longer to be used, but to use for example the third decile of the costs found in all facilities. This statistical method would be combined with expert work by HAS which would confirm that the calculated costs do indeed reflect efficient practices.

The introduction of efficient cost tariffs has a severe limitation. It is not readily compatible with the price-volume regulation introduced *via* ONDAM or particularly with ONDAM's parallel tariff

[153] Cf. appendix 5.

pressure which now penalises all hospitals, including those which are efficient. In addition, by financially covering only the efficient cost there is a risk of deteriorating quality of care, which needs to be pre-empted by tightening the regulatory conditions (such as certification of medical teams, prior agreements, risk management programmes, etc.) defined by the ARS from HAS reference standards.

The IGF[154] proposed that alternative tariff systems be introduced (33) on a targeted experimental basis which were not designed to become universal. It recommends departing from the principle of a segmented payment moving towards a more coordinated approach by:

- increasing the weight of additional payments outside of the tariff systems. The funding system for the care offering already incorporates a further funding outside of the tariffs (33); these may be single payments (for emergencies for example) or allocations (for some non-activity based payments such as psychiatry or MIGAC). These additional allocations may be allocated either nationally or locally (*via* the ARS);
- developing a bundled payment tariff system;
- experimenting with a funding mechanism using regional funding envelopes based on tenders.

2.7.2 What types of efficiency are day surgery tariffs-intended to improve?

The tariff incentives developed for day surgery have been set up in order to encourage replacing conventional surgery by day surgery as the latter is deemed to be more efficient.

The tariff system used therefore represents the second way of thinking described by IGF intended to improve efficiency by encouraging one means of patient management over another.

It is therefore useful to undertake a detailed analysis of the link between the principle of same tariffs used as the main incentive and its actual ability to improve efficiency.

► An initial objective to improve efficiency of allocation

By increasing day surgery, the regulator sought to obtain "allocation" efficiency gains. Day surgery which is deemed to be less expensive to the funder and at least as medically effective as conventional surgery (3) should reduce resource allocations by releasing residual funding for other activities in the care system, either surgical activities or other health care procedures. This is a logic of the opportunity costs of one management strategy compared with another.

Obtaining allocation efficiency gains, however, is partly incompatible with the principle of same tariffs which was adopted.

If the tariff for day surgery is equated to that of conventional surgery, both types of procedure would cost the same to National Health Insurance. The system would therefore no longer achieve cost efficiency gains by replacing one activity with the other. Similarly, if the health facility takes a strictly "income-based" approach their income will increase in the same way whether or not they choose either type of hospitalisation.

Whereas the improvement in expected efficiency is based mostly on an expected reduction in surgical costs to National Health Insurance, same tariffs would cancel out the expected allocation efficiency gains or even produce negative results if the development of day surgery initially required expensive investments paid for by National Health Insurance or the hospital. Replacing conventional surgery with day surgery could also result in an increase in the overall number of procedures performed, leading to increased expenditure to National Health Insurance. This may be a desired objective in health care systems where the care offering is deficient as in the United Kingdom, but is not the starting hypothesis in France.

On the other hand, because of its calculation method which gradually reduces the tariff towards the cost of day surgery based on the proportion of procedures carried out as day surgery, at the end of the process same tariffs would improve allocation efficiency. When the great majority of

[154] Cf. appendix 4.

procedures has shifted to day surgery the same tariff level would become very similar to the day surgery tariff and would potentially reduce the overall financial burden of these procedures to National Health Insurance compared with the initial situation. The rule for calculating tariffs (average J and level 1 tariff for conventional hospitalisation weighted by the day surgery rate in the sector in which the day care rate is highest) should achieve allocation efficiency at the end of the day surgery development phase (if a target objective of 100% day surgery procedures is achieved), and not the same tariff itself.

► Same tariffs do not achieve all of the potential productive efficiency gains.

Activity-based tariffs produce productive efficiency gains through the yardstick comparison mechanism. Hospitals which have production costs of over the applied tariff are pushed to find production processes which reduce their costs. Because of this the same tariff system incentivises hospitals either to reduce their conventional surgical costs which attract a tariff which is below their production costs or to shift their conventional surgery towards day surgery activities.

Regardless, the same tariff system does not guarantee achieving a satisfactory production efficiency level for day surgery for two reasons:

- the same tariff system did not observe the principle of tariff neutrality and supported conventional surgical practices more, so that it did not reward day surgery;
- the current same tariff calculation method is based on ENCC average costs and not the costs of the most efficient surgical units (that is those which are on the frontier of productive efficiency and which have optimised their production processesand patient flows).

In summary, the same tariff system advances day surgery, although the related allocation efficiency gains are only achieved if the tariff set is similar to the costs of day surgery. The same tariff system does not guarantee the maximum productive efficiency gains as long as the tariff is based on average costs and not on costs reflecting good practice. It would therefore be desirable to propose ways of improving the tariff model in order to combine the improvement in allocation efficiency and productive efficiency, at the same time encouraging facilities to increase their day surgery activity when this is appropriate.

► What lessons have been learned from foreign models?

In this section, the effects of best practice adopted in the United Kingdom on tariff efficiency and the effects of bundled payment adopted in the United States are described in succession.

The *Best Practice tariff*

Several aspects of the British *Best Practice Tariff* were designed to improve efficiency:

- the BPT is based on defining good practice using professional standards to reduce redundant or unhelpful investigations, readmissions, linkage to day care and maintaining surgeons' technical skills. This method helps to improve the efficacy and quality of care but not strictly to reduce costs, which may ultimately be higher than the average costs seen previously. The tariff calculated for BPT from the costs may therefore be higher than previously, with higher quality. The impact of BPT on productive efficiency therefore depends on the cost-result differential achieved;
- BPT relies on learned societies establishing a target day surgery rate which is then introduced into the tariff setting mechanism. In this situation it encourages a joint desire for improved allocation efficiency in favour of day surgery. Regardless, the tariff differential in favour of day surgery sends a momentary adverse price signal for this type of procedure to the funder which may lead the funder to believe incorrectly that day surgery has become more expensive than conventional surgery;

- the BPT tariff for day surgery must be beneath the previous tariff set based on the average weighted observed tariff,[155] although above the average costs of day procedures alone. It therefore has the advantage of reducing potential allocation efficiency losses due to tariffs only partially favouring day surgery.

Overall, the British system attempts to reconcile three different objectives in a single tariff system in a context of waiting list management:

- improvement in productive efficiency via its best practice component;
- improvement in allocation efficiency by setting tariffs above the average costs found for both practices;
- giving greater incentives to day surgery by establishing target rates and taking account of these rates in the tariff system.

In either event, setting the day care tariff deliberately above the conventional tariff, the tariff model:

- does not allow the expected allocation efficiency gains to be achieved as the tariff set for day surgery is ultimately higher than the tariff for conventional surgery;
- introduces a surplus for facilities which have greatly increased day care, at the risk of limiting their search for productive efficiency gains in day surgery. This could in particular result in under use of production capacity.

The aim of the British regulator in this case was clearly a different issue than the aim of the French regulator. It prioritised care quality improvement (better day care practice) and the introduction of strong tariff incentives to encourage replacement of one activity with the other. This occurs to the detriment of seeking gains in productive efficiency from a costs perspective and gains in allocation efficiency. Overall, the effect of the tariff rule was to improve day surgery rates and improve quality but overall was probably more expensive to the British health system.

Bundled payments

Bundled payments introduced in the United States were designed to improve productive efficiency at different levels by:

- defining the management phases before and after the procedure according to available guidelines and evidence. Like BPT, this method helped to improve quality of care without necessarily reducing costs;
- promoting coordination to professionals in the different care organisations, thereby reducing redundant investigations or hidden costs due to a lack of coordination.

Its aim is also to make allocation efficiency gains by introducing:

- a lower bundled payment than the payment obtained by adding the care costs by a provider considered in isolation;
- financial risk-sharing between care centres and the funder, in order to reduce the adverse event rate.

The bundled payment was located within a more global view (including all care providers). It combined a desire for efficiency productivity and allocation gains but did not include an incentive component to replace one activity with another.

2.7.3 Details to help overhaul the French day surgery tariff model

In the last part of the report, based on published findings and foreign tariff models we describe the choices which are available to the decision-maker in France to propose tariff rules according to its priorities. Some of these proposals can be combined with each other.

[155] i.e. taking account of the respective proportions of day surgery and conventional surgery.

► If the same tariff system is to be preferred and the aim is to achieve productive efficiency of day surgery from a "costs" perspective

All things being equal (i.e. calculation of tariffs based on average costs and continuing the same tariff system), in order to improve both the productive efficiency of day surgery from a costs perspective and to promote replacement of conventional surgery with day surgery it is necessary that:

- the tariff for day surgery should be set at around the average costs of day surgery. The productive efficiency gains between the day surgery units are then achieved by the yardstick comparison mechanism for these activities;
- for conventional severity level 1 hospitalisation, the tariff applied be the tariff corresponding to the ENCC cost for day surgery. There would then no longer be a financial incentive to carry out day surgery but there would be a financial disincentive to carrying out conventional surgery.

This solution nevertheless has the disadvantage of not providing tariff neutrality for conventional surgery and potentially underfunding the practice, even when it is appropriate for patients.

► If the desire is to promote productive efficiency gains in terms of the "health result"

The health result may be improved if all patients have the most appropriate techniques for their clinical situation. The calculated cost for day surgery must then be the cost of the best, or at least good, practice. There are three methods to determine this practice:

- definition of reference practice or good practice (HAS) which are then valued monetarily.
- assessment of standards from efficiency boundaries (*Data Envelopment Analysis* method: cf. part 2.4.1);
- use of a statistical method (such as based on quartiles of observed costs).

The utility and feasibility of these different methods for day surgery in France should be assessed.

► If the principle of tariff neutrality is to be preferred for the two practices considered in isolation and the specific organisational features of day surgery are to be recognised

Day care, even though the technical procedure is the same, involves a different method of organisation, a different sequence of procedures compared with conventional surgery and in some cases even different techniques (surgical or anaesthetic). They are also classified into different GHS. The day surgery production process is not therefore similar to the process for conventional surgery. The structure of the costs is therefore different.

In order to preserve tariff neutrality and recognise day surgery as a different organisational model from conventional surgery, a different tariff should therefore be restored for day surgery and level 1 surgery and, as a result, a departure from the principle of same tariffs.

The day care tariff would then be set at the observed costs for the practice. Regardless, as the main generator of costs in day surgery is not the length of stay, the methods for calculating costs should be redefined, particularly for staff charges which could, for example, be based on operating theatre time required for procedures as proposed in two studies (25, 51).

► If the aim is to break with the judgement-penalisation role of tariffs regarding the appropriateness of conventional surgery

Same tariffs fund conventional surgery at under its production costs and over the production cost of day surgery. There is therefore a penalisation mechanism for one and a reward mechanism for the other. This assumes that when conventional surgery is performed it may be inappropriate and therefore attract a tariff beneath its actual cost. There is therefore an implicit dimension of judgement of practice in the tariff system adopted.

This role of tariffs can be deemed inappropriate for two reasons:

- the appropriateness of day surgery cannot be assumed without initially assessing the clinical, social and environmental situation of the patient. The least expensive practice (day surgery) is only of benefit if it is also the most appropriate for the patient's situation, otherwise there is a risk that adverse events will occur (readmissions, morbidities etc.).
- There is already a system in place with the specific aim of assessing the appropriateness of conventional surgery depending on the patient's situation. Since 2008 as part of the social security finance law some facilities (on the decision of the ARS) have been given prior agreement (MSAP) from French National Health Insurance. The ARS decides on a facility's MSAP on a proposal from French National Health Insurance for a maximum period of six months. It involves 17 surgical procedures[156] which can be carried out on a day surgery basis. In practice this means that when a full hospitalisation is desired for a patient for one of the selected procedures, the facility must obtain the agreement from the French National Health Insurance medical department. The MSAP therefore checks that the procedure carried out is the most appropriate for the patient's clinical situation.

► If the aim is to ensure that the incentives are based on the practices of hospitals

The aims of developing day surgery in France were set macroeconomically (overall rate of 50% of day surgery procedures between now and 2016). The tariff incentives have also been applied macroeconomically as the same tariff is used for all hospitals.

The hospitals' individual situations vary with respect to their development of day surgery and the level of efficiency already achieved. The decision as to whether or not to develop day surgery is taken in the hospital. The national day surgery rate recorded by ATIH is therefore the sum of microdecisions taken in isolation in the surgical units for each centre or even at an individual patient level. These microdecisions are independent of each other, although the tariff system chosen (average cost tariff for all hospitals, same tariff, tending towards the day surgery tariff as the national objective is achieved), make them by definition interdependent. It is therefore essential that tariffs encourage above all:

- hospitals which already carry out day surgery to continue or extend their activities, seeking productive efficiency gains;
- hospitals which mostly carry out conventional surgery to increase day surgery in addition to or replacing conventional surgery.

The decision to commit to day surgery is taken by the hospital. It is therefore logical that the incentives should be based on the same principle.

In addition, at a health facility level, the tariff-cost balance is based on productive efficiency gains which it is able to achieve by optimising its production process. These gains are increasingly difficult to achieve when the hospital has optimised its production process. In addition, optimising productive efficiency comes back to two different concepts: productive efficiency gains achieved through economies of scale (increased volume) and efficiency gains due to economies of scope. The latter may rely on greater specialisation or conversely to a more diverse range of cases treated.

Finally, the incentive to take action is only effective if the benefits of the incentives received by the hospitals are then at least partially redistributed to the staff responsible for them. This redistribution

[156] Adenoidectomies, knee arthroscopies, excluding ligamentoplasties, anal surgery, carpal tunnel surgery and other nerve release surgery (MS), conjunctival surgery (pterygium), Dupuytren's surgery, surgery on the scrotum, inguinal hernia surgery, varicose vein surgery, lens surgery, breast surgery/lumpectomy, repair surgery for ligaments and tendons (hand), surgery for strabismus, uterine, vulval, vaginal and assisted reproduction technology surgery, pelvic laparoscopy, tooth extraction, excision of synovial cysts.

does not have to be monetary in nature and may involve improved working conditions or improved training, etc.

In order to incentivise and encourage day surgery in each facility, several avenues can be explored:

use incentives in preference to penalties to achieve allocation efficiency gains.

As the aim is to increase day surgery, thought could be given to measuring allocation efficiency gains generated annually by the increase in the DS rate for a given procedure for the same number of procedures. The efficiency gains would then be shared between National Health Insurance and the hospitals, dividing up the envelope based on the efforts made to develop day surgery by the centres in question.

combine tariffing incentives with other supporting measures.

Tariff incentives alone are not sufficient to increase day surgery. In Great Britain therefore, introduction of the BPT was supported by measures such as default admission of all patients to day surgery for selected procedures, recruitment of staff trained specifically in day surgery and visits by the best performing teams.

According to the IGF in France[157] (33), adapting the care offering to needs using the most appropriate type of care (increasing day surgery capacity to the detriment of conventional hospitalisation) combines several factors such as training, correct linkage of the care pathways (for example reducing mean LOS for elderly patients by day care involves appropriate post-procedure solutions) and the benefits of taking action (via the tariff or payment). According to the IGF, the role of the tariff system should therefore be limited and it should be supported by other measures, several of which have recently been recommended:

- contracting between the ARS and facilities

IGAS (33) proposed that in reward for reaching targets to increase day surgery adjusted for the local position of the facilities and their clientele, temporary payments be allocated funding by the MIGAC. This is not intended to be a long-term incentive once the local objectives are met.

According to IGAS, this method of incentivising outside of the tariff system is particularly relevant as the increase in day surgery often leads to reorganisations in hospital practice. In its opinion, hospitals should be incentivised to carry out this reorganisation, although there is no reason to continue the incentive once day surgery has become the routine practice. In any event, the MIGAC would then be able to benefit from this reorganisation alongside the public and private hospitals.

- improved transparency of the investment policy

According to IGAS (31), the reorganisation of the care offering required to promote the increase in day surgery may require restructuring processes which are often linked to investment capacity. The restructuring needs to be organised around patient reception and the patient's circuit for day surgery.

Setting tariffs (31) *via* the ENCC, takes account of investment expenditure (group 4 expenditure: buildings and financial costs). The tariffs therefore incorporate a smoothed mean component for investment by the hospitals taking part in ENCC. The 2007 and 2012 hospital plans and public and private health facility modernisation funds (FMSEPP) nevertheless have funded exceptional expenditure but in the opinion of IGAS this may have led to windfall effects, with oversized equipment for activity and the monies allocated are to the detriment of those allocated to tariffs.

According to IGAS, the financial situation for care centres has deteriorated since T2A was introduced and their ability to self-fund (ASF) has declined although the overall picture masks large disparities. IGAS therefore recommended that an investment theory be developed for hospitals,

[157] Cf. appendix 4.

taking account of their greater awareness of return on these investments than previously and to questions of how they are funded. It recommends more coherent support from the statutory authorities.

According to IGAS, the governing authorities should inform the hospitals if the tariffs for one activity need to be used to fund current investment as structure investments are funded from additional allocations.

Key points

Activity-based tariffing is intended to improve allocation of funds between hospitals and achieve efficiency gains through the yardstick competition mechanism. Nevertheless the closed envelope for health facilities within the National Health Insurance Expenditure Target tends to shift T2A activity based tariffs towards a budgetary allocation mechanism. According to IGF this drift should be corrected in order that the tariff rules ensure production at efficient costs. The practical methods for determining these efficient costs remain to be established (from good practice reference standards and statistics).

Same tariffs were introduced in surgery in order to promote replacement of conventional surgery by day surgery and to release allocation efficiency gains, as day surgery is deemed to be less expensive for the funder. With same tariffs, the allocation efficiency gains become more limited than those initially expected as they can only be achieved when the tariff applied has converged on the cost of day surgery after this activity has increased. In addition, because it does not respect the concept of tariff neutrality and is still calculated from average costs, the same tariff system does not achieve all of the potential productive efficiency gains.

The tariff models used in other countries (best practice tariffs in Great Britain and bundle care tariffs in the United States) were introduced in specific contexts but were also designed to increase efficiency:

- **the aim of the British regulator was to concentrate on improving the amount of day surgery on offer, at the same time improving quality of care (best practice) and introducing strong tariff incentives to encourage replacement of one activity with another. The best practice tariff model, however, encouraged improvement in quality of care but not necessarily efficiency gains, as best practice costs may be higher. In addition, the tariff incentive for replacement led to higher tariffs for day surgery compared with its actual costs to the hospital. Overall the effect of the tariff system was that it improved day surgery rates and improved quality but was probably more expensive overall to the British health system;**
- **the American model of bundled care payments lay within a more global view (taking account of all care providers). It combines a desire to make productive and allocation efficiency gains, but does not include incentive components intended to replace one activity with another.**

The literature review demonstrated that different factors can contribute to overhauling the French same tariff model. Opting in favour of one or other of these depends on the aims of and restrictions from the regulator.

- **if the aim is to seek productive efficiency for day surgery whilst maintaining same tariffs, the tariff should be set at the observed cost for day surgery;**
- **if the intention is to promote productive efficiency gains on the health results side, the tariff should be calculated with reference to the day surgery good practice production cost;**

- **if the principle of tariff neutrality is to be preferred, at the same time recognising the specific organisational features of day surgery, same tariffs should be abandoned and the tariff should be set for each of the care procedures at its actual cost (one tariff for J stays and one for severity level 1 stays);**
- **if the intention is to depart from the "assessment of conventional surgery" dimension which implicitly involves same tariffs, this should be abandoned in favour of mechanisms to assess the appropriateness of conventional surgery practices (such as prior agreement with National Health Insurance);**
- **if the intention is to increase incentives and put in place systems within the hospitals, allocation efficiency gains should be shared depending on the efforts made by each hospital, and supporting measures (contracting, investment policy) could be considered nationally or locally via the ARS.**

These different proposals could be combined depending on the statutory bodies' objective.

3. Observations and recommendations

The aim of the joint HAS-ANAP programme on day surgery is to propose different drivers to achieve a day surgery procedure proportion in the region of 50% by 2016.

This position statement is part of area 4 of the "Economic assessment tools and recommendations". Its aim is to produce a current status report on tariff systems which apply to day surgery in France and in other countries and then to propose areas for improvement in order to both increase the day surgery rate in France and increase the efficiency of surgery.

The status report described in this document has shown that several tariff incentive methods have been put in place since 2004 and have increased over the recent period (2012-2013). These measures represent a major effort on the part of the regulator to encourage this type of practice. They also fall within the wider issue of incentives based on the principles of activity-based tariffs and are echoed internationally, as several countries are using similar systems.

After the analysis of the day surgery tariff situation in France, and in other countries and from the information obtained from the literature review, a group of observations may be made and several drivers for action identified. Twenty-five recommendations have been made from these, listed below.

These recommendations are directed to the regulator and more generally concern all of the parties involved in day surgery. They need to be relocated in a more global strategic view of the care offering in the country, tariffs not being the only driver. They are consistent with the organisational recommendations proposed in area 3 of the joint ANAP-HAS programme on day surgery.

The place of tariff incentives in the policy to develop day surgery

Observation

In several countries including France, activity-based tariff incentives are not the only incentive method used to encourage an increase in day surgery. Other incentive measures have been produced by the regulators.
These work at the level of the hospitals and include default admission of all patients to day surgery, recruitment and training of staff in the specific practice of day care, determining good practice, visits from the best performing teams and setting up contracts with the statutory authorities, etc.

Recommendations:

1. relativise the extent and impact of tariff incentives in the group of measures intended to increase day surgery;

2. support the tariff measures with other non-T2A financial and non financial measures. These measures, details of which remain to be defined, could be introduced in the hospitals by the Regional Health Agencies (investment plan, contracting with the hospital, training plan, etc);

3. ensure that the different incentives are compatible and do not include perverse incentives particularly in terms of the national objective, the options open to each hospital and the ARS strategies.

Activity-based tariffs, same tariffs

Observation

Activity-based tariffs in principle promote a reduction in stay and therefore an increase in day surgery. However, a deduction was initially made to the tariff for day surgery stays compared with full hospitalisation stays. This may have partly contributed to the delay in the initial advance of day surgery activities in several countries, including France.

The literature review and study carried out with IAAS have shown that same tariffs for conventional and day surgery are the main tariff driver which was used in European countries at the beginning of the years 2000 to 2013. The data obtained, however, did not establish a link between same tariffs and high rates of day surgery in the different countries.

The French regulator used the same tariff driver later (from 2009) for a given list of procedures (39 in 2012), with the intention that this list would extend. In addition, some lower limits for length of stay were removed for certain non J GHS in France which because of this also benefited from same tariffs.

Same tariffs should be a potentially powerful incentive to promote the increase in day surgery. By paying day surgery above its production cost measured in the national common costs scale, it enables care centres which wish to increase this activity to benefit from a windfall effect, which could trigger dynamic increases in this activity.

Few studies, however, have examined the impact of same tariffs or more generally, activity-based tariffs on the increase in day surgery. These studies have different methods and objectives. They have a low level of evidence. Overall, the hospital workers concerned describe the system as being complex and unstable over time, which does not make it easy to understand and therefore limits its incentivising power.

Recommendations:

4. gradually evolve the principle of same tariffs by controlling the change in tariffs (change limited to modifying the conventional surgery/day surgery activity components) whilst making the system easier to understand for people who wish to increase this activity;

5. carry out a study over the 2012-2016 period to establish the proportional contribution of same tariffs to the development of day surgery for the GHS concerned;

6. in order to promote the development of new day surgery procedures or management of more complex (severity levels 2 and 3) patients as day surgery, a regular survey on emerging day surgery practices in France should be carried out. After assessing their relevance and safety, an adjusted tariff could be introduced for the procedures in question such as removing the lower limits for length of stay.

Tariff neutrality

Observation

Currently, the tariffs set in the same tariff system do not observe the principle of tariff neutrality, which forms the basis of activity-based tariffs. Tariff neutrality implies that the tariffs determined are closely related to the average costs observed in the facilities belonging to the national common cost scale. This principle is now no longer respected if we consider the total tariff amount for same tariff GHS (between severity level 1 and J) and the level of each same tariff GHS couple.
It is *particularly* no longer respected when the J and severity level 1 GHS are considered in isolation, because of the introduction of same tariffs; in this situation, however, non-neutrality is justified by the incentive policy introduced in favour of day surgery, which assumes that day surgery gains with respect to its ENCC cost.

Recommendations:

7. for as long as the tariffs are calculated on current bases (ENCC method based on average costs), ensure that the principle of tariff neutrality is respected:
    - for the total tariff amount for all same tariff surgery GHS,
    - for the total tariff amount for each same tariff GHS couple considered as an aggregate (between severity level 1 and day surgery);

8. on the other hand, continue tariff non-neutrality incentives between full hospitalisation for severity level 1 and day surgery for the same tariff GHMs.

Dynamics of change

Observation

The system for calculating same tariffs is based on the average observed costs for conventional and day surgery weighted by the proportion of each of these activities. Dynamically, same tariffs therefore will fall mechanically becoming increasingly closer to the cost of day surgery, provided that day surgery increases. This calculation system therefore results in:

- the initial profits over tariff for day surgery only being temporary and gradually disappearing as the day surgery proportion becomes high and the objective is therefore reached;
- in parallel, provided that the tariff is set close to the day surgery cost conventional, severity 1 hospital activities in a conventional hospitalisation are increasingly less well paid.

Recommendation:

9. analyse the consequences of the dynamics of change of tariff systems on configuration of the desired medium term surgical activities (at least to 2016 set by the regulator). The current rules for setting the same tariffs should incentivise hospitals to give up conventional surgical activities for severity 1 level stays in favour of day surgery. It would be useful to define whether this objective is indeed the objective followed by the regulator for the entire same tariff GHS (cf question of differentiating between target rates).

Target rate

Observation

A national target of 50% of procedures carried out as day surgery has been set by the regulator for 2016. The HAS-ANAP overview report identified considerable differences in current day surgery rates depending on the procedure. The level of "effort" needed to achieve the objective is therefore different for different procedures and hospitals.

In other countries, introduction of the *Best Practice Tariff* in Great Britain was supported by a definition of target rates using the *British Association for Ambulatory Surgery* (BADS) procedure and the magnitude of the tariff incentive depends partly on the difference from the target, by procedure.

Recommendations:

10. break down the national target rate for day surgery into rates per procedure or GHM root. To do this, the experience of the *British Association for Ambulatory Surgery* may feed into the French debate;

11. study the appropriateness of changing the magnitude of tariff incentives by examining the difference between current practice and the proportion to be achieved by procedure nationally.

Tariffs for independent day surgery centres

Observation

Several countries including France have developed independent day surgery centres. In the United States and Great Britain these centres initially received a higher tariff for day surgery compared with the hospital facilities which was above their production costs, in order to encourage them being launched and developed.

This attractive tariff system had the effect that these centres developed rapidly. This led the authorities subsequently to reduce the tariff scales for the independent centres (considerably below the tariffs for conventional surgery in the United States), particularly as studies showed that the population treated in these centres was less elderly, more were covered by private insurance and that they had fewer comorbidities than patients treated in hospitals.

Recommendations:

12. document the statuses, organisational methods, clientele and impact of production costs, quality and care offering of non overnight stay "independent centres" for day surgery present in France. This analysis should be carried out both from the care centre's perspective and from a society perspective;

13. if the option of developing other independent centres were adopted thought should be given to the appropriate tariff methods to apply to these centres.

Tariffs and efficiency

Observation

Same tariffs have the effect of positioning conventional surgery and day surgery at the same cost to the funder which initially results in the funder losing the allocation efficiency gains which it might expect from the increase in day surgery. These gains are only achieved secondarily when day surgery has increased sufficiently for the tariff to become close to the cost of day surgery (depending on the calculation rule adopted).

Because the tariffs are set based on the average cost of some care centres, neither activity-based tariffs nor same tariffs guarantee that the observed costs represent efficient practices (both costs to the organisation or surgical techniques used) either for conventional surgery or for day surgery.

International studies have been carried out around this criticism and proposals combining tariff setting and improved efficiency have been introduced in the United Kingdom and the United States.

Recommendations:

14. ultimately, move gradually away from tariffs based on the average cost, opting more for tariffs based on the most efficient practices (taking account of all of the dimensions of efficiency);

15. studies could be carried out on day surgery because it follows standardised protocols to define the best practice tariff principles, as have been developed in Great Britain;

16. in order to encourage a reduction in adverse effects, "bundled payment" introduced in the United States could be experimented with to pay for all of the care delivered in day surgery from confirmation of the diagnosis to any readmissions;

17. increased knowledge about the specific methods for calculating incentivising tariffs in other countries and their adoption by the parties concerned.

Hospital costs of day surgery

Observation

French studies have shown that hospitals often reason from a strictly additional or lost "income" perspective in increasing day surgery or as a replacement for conventional surgery. This approach promotes an increase in volume to the detriment of an approach comparing the change in income with the change in costs in the context of replacing conventional and day surgery.

In addition, in order to calculate the cost of stays and determine their tariffs, the key factor for the distribution for facilities and staff costs is still the length of stay. Foreign studies have shown that day surgery production costs vary mostly according to lengths of procedure and the materials or techniques used.

Recommendations:

18. consider day surgery as a specific activity. The organisational details and length have consequences on cost calculation methods. To this effect, carry out for example impact studies on the different factors which influence facilities or staff costs according to the lengths of the surgical procedures or techniques used for some procedures performed routinely in day surgery from the costs listed in the national common costs scale;

19. the "microcosting study" envisaged in the HAS-ANAP programme should illustrate the differential between actual cost of day surgery activity and expected income and analyse the consequences of activity decisions made by the facilities;

20. analyse the impact of optimising the patient care process on day surgery production costs.

Information and communication about tariff rules

Observation

The level of knowledge and information about tariff methods applicable and their related incentives is still insufficient for field workers, which may act as a restriction to the increase in day surgery.

Recommendations:

21. increase regular communication and information activities about the tariff rules in force. These activities should be directed towards the DSU professionals (medical and non-medical), learned societies and management staff in the care centres;

22. ensure that the tariff rules used are easy to understand and immediately interpretable in terms of incentives;

23. put in place communication tools enabling the facilities to know the predictable change in tariffs in advance over a multi-year time frame such as three years.

Funding components other than those covered by the tariff

Observation

The study only considered day surgery activity funding via tariffs. The other types of funding obtained by the facilities to fund day surgery activities were not included in the scope of the analysis. These may, nevertheless, be considerable (obtained for large investments for example) or be based on patient contributions or from contributions from their complementary organisations (hospital payments, co-payments, excess fees).

Recommendations:

24. carry out a global assessment of expenditure incurred by hospitals and the governing bodies to convert conventional surgical activities into day surgery;

25. carry out a study on average patient co-payments in day surgery compared with those for conventional hospitalisation.

4. Document search method

In order to write the first version of the discussion, a detailed document search was carried out by a systematic search of the economic, medical and scientific literature databases over the period 2000 to 2012. The languages searched were French and English.

The literature databases consulted during the first phase are listed below (cf. document search strategy at the end of the document):

- *Medline* (*National Library of Medicine*, United States);
- *Academic Search Premier*, a multidisciplinary database allowing access to the whole text of over 8,500 journals;
- *EconLit*, the *American Economic Association* electronic database.

Publications in English and French were searched.

Type of study/subject Terms used		Period of search	Number of references
Stage 1	*"Ambulatory Surgical Procedures"[Mesh] OR "Surgicenters"[Mesh] OR (Ambulatory Surgery OR Outpatient Surgery OR Outpatient Surgeries OR Ambulatory Surgeries OR Day Surgeries OR Day Surgery OR Surgicenters OR day case surgery Or same day surgery)[title]*	01/2000 – 12/2012	
AND			
Stage 2	*("Accounting"[Mesh] OR "Financial Management"[Mesh] OR "Financial Management, Hospital"[Mesh] OR "Health Expenditures"[Mesh] OR "Marketing of Health Services"[Mes OR "Reimbursement Mechanisms"[Mesh] OR "Physician Incentive Plans"[Mesh] OR Reimbursement, Incentive OR Reimbursement Mechanisms OR "Financing, Organized"[Me OR "Diagnosis-Related Groups"[Mesh] OR "Prospective Payment System"[Mesh] OR "Economics, Hospital"[Mesh] C "Economics"[Mesh] "Cost Allocation"[MeSH] OR "Cost-Bene Analysis"[MeSH] OR "Costs and Cost Analysis"[MeSH] OR "Cost Control"[MeSH] OR "Cost Savings"[MeSH] OR "Cost o Illness"[MeSH] OR "Health Care Costs"[MeSH] OR "Economics, Medical"[Mesh] OR "economics"[MeSH] OR"Co Sharing"[Mesh] OR Cost OR economic* OR indirect cost OR reimbursement OR payment OR Payment for performance C (P4P) OR Payment by Results [title])] OR ("Ambulatory Surg Procedures/economics"[Mesh]) OR "Surgicenters/economics"[Mesh])*		652

An analysis of the French literature (BDSP and Pascal) was also undertaken.

The studies selected during this first phase were chosen on the basis of their abstracts.

At the end of this first phase we found no literature reviews on the different tariff principles used in other countries and the underlying financial incentives for day surgery.

In addition, the articles published were often specific to organisational reforms or changes in the tariff principles and choices, particularly for two countries:

- the United States, where the analysis was directed mostly towards the economic and tariff consequences of introducing ambulatory surgery centres or ASCs, which are either incorporated into hospital facilities or are entirely independent. The articles chosen involved

descriptions of payment methods and strategic responses of the ASCs or hospital departments by analysing the consequences on specialisation by type of procedure or between different categories of patients treated;

- in Great Britain, where the thinking was incorporated into the *payment by results* or performance system, introduced since 2002 for hospitals. The tariff principles are based on "*Healthcare Resource Groups*" (HRGs), which are similar in operation to the French GHM.

Overall, the first analysis phase identified only around fifty references relating to the question of the impact of day surgery on tariffs, three quarters of which concerned the introduction of ASCs in the United States (cf. Table 11).

Table 11. Number of references initially included by country after selection via key words and reading abstracts

Country	Number of references identified on the subject
France	4
United States	37
Great Britain	5
Norway	2

Examination of the references cited in the articles analysed allowed articles to be selected which were not identified when the various information sources were initially consulted.

To complement the analysis of the tariff methods literature, we accessed government and health organisation websites, in particular:

For France:

- Agence technique de l'information sur l'hospitalisation (ATIH [French Hospitalisation Technical Information Agency]): http://www.atih.sante.fr/
- Institut de recherche et documentation en économie de la santé (IRDES [French Institute for Health Economics Research and Documentation]) http://www.irdes.fr/

For other countries:

- **United States:**

- *US Department of Health and Human Services*: http://www.hhs.gov/;
- *United States Government Accountability Office* (GAO): http://www.gao.gov/
- *Rand Health*: http://www.rand.org/health.html
- *Medicare Payment Advisory Commission* (MedPAC): http://medpac.gov/
- *Centers for Medicare and Medicaid Services*: http://www.cms.gov/

- **Great Britain**

- *National Health Service – Department of Health*: http://www.dh.gov.uk/en/index.htm
- *House of Commons Health Committee*: http://www.parliament.uk/business/committees/committees-archive/health-committee/
- *Kings'Fund*: http://www.kingsfund.org.uk/

- **Europe**

- *World Health Organization - European Observatory on Health Systems and Policies*: http://www.euro.who.int/en/who-we-are/partners/observatory

Documents which were not accessible through conventional information distribution channels (the grey literature) were searched using all available means. In addition, legislative and regulatory documents which could be relevant to the subject were consulted.

The members of the methodological support group could contribute articles from their own literature sources.

To supplement the information about tariff rules used in other countries, a letter (cf. box 1) and list of questions in English (cf. box 2) were sent in October 2012 to the president of IAAS (Dr. Carlo Castoro), in order to identify staff and resources, as well as specifying the tariff methods and the existence of independent day surgery centres. The same questions were sent to several authors of publications identified in the literature describing tariff rules or the organisation of day surgery.

Letter sent to the president of IAAS

Isabelle HIRTZLIN
Haute Autorité de Santé (French National Health Authority)
Department of Economic and Public Health Assessment
2, avenue du Stade de France
93218 Saint-Denis La Plaine CEDEX
FRANCE
Phone number: 00 33 1 55 93 72 93
Email: i.hirtzlin@has-sante.fr

D[r] Carlo CASTORO
Instituto Oncologico Veneto
Ospedale Busonera
Via Gattameleta, 64
35128 PADOVA
ITALY

Paris, 26th October, 2012

Dear Dr. Castoro,

Following your conversation with Mr. Parmentier last week in Porto, I confirm that I would be grateful if **the IAAS network and Daysafe members could help the French National Authority for Health (HAS) to identify correspondents about the financial incentives recently implemented in their country for day surgery**.

According to the last IAAS 2011 survey for 2009, day surgery was 37% of all surgery and 45% of the basket of 37 procedures in France. Identified barriers are surgeons, economics, facility design, information, and education.

To accelerate the substitution of inpatient surgery by day surgery, a national strategy for ambulatory surgery progress was decided by the ministry of health, under the auspices of two national health institutions; the French National Authority for Health (HAS) and the ANAP (National Agency for Hospitals performance).

Among other topics, HAS will analyse the payment rules for day surgery. New payment incentives were already implemented in France for 2011 and 2012. DRG (called GHM) prices differ for public and private hospitals. National DRG prices are set annually. Hospitals are paid a fixed tariff per DRG, so they are incentivised to reduce length of stay and to treat more patients. To accelerate the day surgery development, 40 procedures are now paid at the same tariff when performed as a day case or as an inpatient. For other surgical procedures the former lower tariff for short stay outliers has been suppressed since 2012.

To go further, HAS is now studying the payment incentives that are implemented by other countries. Our analysis is based on a literature review and on health authorities' national payment guides, when accessible in English. For most countries data are lacking, probably because they are not publicly accessible or not published in English, so **we would like to get experts' names in order to send them a detailed questionnaire and ask for documents (written in English) about the financial incentives about day surgery that are already implemented or tested in their country**.

Thank you in advance for your help.

Sincerely yours

Box 2: List of questions sent to the IAAS correspondents

Does your country use "activity-based payment (DRGs)" to pay hospitals? and day surgery?

- If not what are the payment rules? for hospitals and for day surgery?

Have you got one national tariff or local ones for each surgery procedure?

- If not is the tariff different by insurance (sickness funds)?
- By hospital categories (e.g. for profit or not for profit, local and general hospital...)?

Do you have the same DRGs tariffs for inpatient and day surgery? for all procedures? for a limited list of procedures?

- If so, how are the tariffs calculated:
  * medium cost observed for a sample of hospitals? other mechanism?
  * does this single price correspond to the weighted mean cost observed for day surgery and inpatient surgery?
- If not, what are the pricing rules for ambulatory surgery?
  * medium cost for day surgery observed for a sample of hospitals? other mechanism?
  * what is the difference in percentage (eg. 25% less) between the tariffs of day surgery and inpatient?

Have you experienced in your country new payment models for ambulatory surgery such as:

- Best practice tariffs,
- Bundled payment,
- Other rules...

Are there independent day surgery centres in your country?

- If so, what are the tariffs for them? (eg. the same as for hospitals, less than in hospitals...)

The questionnaire was completed by IAAS members:

- Germany– Jost Brökelmann;
- Belgium – Paul Vercruysse;
- Denmark – Claus Toftgaard;
- Spain – Ferdinando Docobo;
- Portugal – Paulo Lemos;
- United Kingdom – Ian Jackson;
- Sweden – Jan Jakobson;
- United States – Philip Beverly.

For Italy, a response was obtained from Mrs. Cristina Naro of the Administrative and Finance Directorate of a private hospital belonging “La Générale de Santé” group.

Lists of tables, graphs, organigrams and diagrams

Abbreviations

In order to facilitate reading the text, the abbreviations and acronyms used are explained below-

List of abbreviations used	
Abbreviation	Term
AHA	*American Hospital Association* (in the United States)
ANAP	Agence nationale d'appui à la performance des établissements de santé et médico-sociaux (French National Agency to support Health and Social Medicine Institution Performance)
APC	*Ambulatory Payment Classification* (in the United States)
ARS	Agence régionale de santé (French Regional Health Agency)
ASA	*American Society of Anesthesiologists*
ASC	*Ambulatory Surgery Centres*
ATIH	Agence technique de l'information sur l'hospitalisation (French Hospitalisation Technical Information Agency)
BMF	Budget des moyens financiers (in Belgium) (Financial resource budget)
BPT	*Best Practice Tariff*
DS	Day surgery
AHC	Analytical hospital accounting
SFC	Self-funding capacity
CEESP	Commission d'évaluation économique et de santé publique de la HAS (HAS Committee for Economic and Public Health Assessment)
CHU	Centre hospitalier universitaire (University Hospital Centre)
MDC	Catégorie majeure de diagnostic (Major diagnostic category)
MEC	Commission médicale d'établissement (Medical executive committee)
CMS	*Centres for Medicare and Medicaid Services* (in the United States)
CNAMTS	Caisse nationale d'assurance maladie des travailleurs salariés (French National Salaried Workers' Health Insurance Fund)
CSP	Code de la santé publique (French Public Health Code)
CV	Coefficient of variation (statistics)
DAGS	*Danish Ambulatory Grouping System* (in Denmark)
DEA	*Data Envelopment Analysis*
BB	Block budget
DGS	Direction générale de la santé (French Directorate-General for Health)
DID	*Difference in Differences* (statistics)
MID	Medical information department
mean LOS	Mean length of stay
DPG	*Day Patient Grouper* (in Ireland)
DREES	Direction de la recherche, des études, de l'évaluation et des statistics (French Directorate for Research, Surveys, Assessment and Statistics)
DRG	*Diagnosis Related Group*
ECR	*Evidence-informed Case Rate*
ENCC	Échelle nationale de coûts commune (French National common costs scale)
ENEIS	Enquête nationale de mesure des événements indésirables graves (French National Survey for Serious Adverse Event Measurement).
ESPIC	Établissement de santé privé d'intérêt collectif (French private hospital serving the French National Health Service)
FINESS	Fichier national des établissements sanitaires et sociaux (French national file of health and social facilities)
FMSEPP	Fonds de modernisation des établissements de santé publics et privés (French funds for modernising public and private health facilities)

List of abbreviations used	
Abbreviation	Term
OSP	Operating room payment
GAO	*Government Accounting Office* (in the United States)
MSG	Methodological support group
GHM	Groupe homogène de malades (French DRG equivalent)
GHS	Groupe homogène de séjours (French SRG equivalent)
G-DRG	*German Diagnosis Related Groups*
HAS	Haute Autorité de Santé (French National Health Authority)
CH	Conventional hospitalisation
HCFA	*Health Care Financing Administration* (in the United States)
HMO	*Health Maintenance Organisations* (in the United States)
HRG	*Healthcare Resource Group* (in the United Kingdom)
CI	Confidence interval (statistics)
IAAS	*International Association for Ambulatory Surgery*
IGAS	Inspection générale des affaires sociales (French General Inspectorate for Social Affairs)
IGF	Inspection générale des finances (French General Inspectorate for Finances)
ISTC	*Independent Sector Treatment Centre* (in the United Kingdom)
MEAH	Mission nationale d'expertise et d'audit hospitalier (French National Expertise and Hospital Audit mandate)
MSO	Medicine, surgery, obstetrics
MECSS	Social security assessment and monitoring mission
MEDPAC	*Medicare Payment Advisory Commission*
MERRI	Missions d'enseignement, de recherche, de référence et d'innovation (Training, research, reference and innovation mandates)
MFF	*Market Forces Factor* (in the United Kingdom)
MIGAC	Mission d'intérêt général et d'aide à la contractualisation (Contracting general benefit and assistance mandate)
MPFS	*Medical Physician Fee Schedule* (in the United States)
NHS	*National Health Service* (in the United Kingdom)
ONDAM	Objectif national de dépenses d'assurances maladie (French National Health Insurance Expenditure Target)
OPPS	*Outpatient Prospective Payment System* (in the United States)
OQN	Objectif quantifié national (Quantified French National target)
OR	*Odds Ratio* (statistics)
P4P	*Payment for Performance* (in the United Kingdom)
PCT	*Primary Care Trusts* (in the United Kingdom)
POS	*Patient Outcomes in Surgery* (in the United Kingdom)
PROM	*Patient Reported Outcome Measures* (in the United Kingdom)
SDS	Standardised discharge summary
T2A	Activity-based tariffs
DSU	Day surgery unit
WMD	*Weighted Mean Difference* (statistics)

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Annexe 1. Comparison of day surgery rates in the IAAS statistics

Table 12. Day surgery rates in the IAAS surveys for a list of procedures and as % of total surgery or planned surgery in Europe and the United States

	IAAS survey 1994-1995 18 procedures (10)	IAAS survey 1996-1997 18 procedures (16)	IAAS survey 2004 37 procedures (15)	IAAS survey 2009 37 procedures (17)	IAAS survey 2004 % day surgery / total surgery (15)	IAAS survey 2009 % day surgery / total surgery (17)	IAAS survey 2004 % day surgery / total planned surgery (15)	IAAS survey 2009 % day surgery / total planned surgery (17)
United States	93.2	94.2	83.5	-	-	-	-	
Germany	-	-	60.7	-	37	43.5	-	-
Belgium	39.2	44.9	79.3	78	30	-	43	-
Denmark	41.3	78.5	69	86	55.3	74	61	89
Spain	-	33 (Andalucia)	54	63	28-44	33	-	87
Finland	32	56.4	62.4	65	35		43	63
France	**-**	**30.4**	**44.9**	**45**	**-**	**36**	**-**	**-**
Ireland	38	40.1	-	-	-	-	-	-
Italy	-	21.9 (Venice)	41	60	29	32	-	64
Luxembourg	19.3	-	-	-	-	-		-
Norway	-	-	68	88	48	50	60	64
Netherlands	58.2	66.7	69.8	68	49.6	53	58	-
Portugal	10.4	9.9	18.5	55	10.7	35	14.6	43
United Kingdom	46.2	60	62.5	77	-	52	-	62
Sweden			**66.7**	**73**	**50**	**69**	**-**	**80**

Source: De Lathouver 1998 (10), De Lathouver 2000 (16), IAAS , 2006 (15).
Source: IAAS, 2006 (15).

List of the 37 procedures used by IAAS

Name of Procedure	ICD9CM Coding	NCSP Coding	Number of ambulatory cases	Number of inpatient cases
Cataract	13.1 – 13.7	CJB – CJE		
Squint	15.0 – 15.9	CEB – CEW		
Myringotomy with tube insertion	20.01	DCA 20		
Tonsillectomy	28.2 – 28.3	EMB 10 – 20		
Rhinoplasty	21.8	DJ, DL		
Broncho-Mediastinoscopy	33.22 – 33.24, 34.22	UGC, GEA		
Surgical removal of tooth	23.1	EBA 10		
Endoscopic female sterilisation	66.2	LGA		
Legal abortion	69.51, 69.01	LCH00, LCH03		
Dilatation and curettage of uterus	69.02, 69.09	LDA00, LDA10, LCA10, LCA13, MBA00,MBA03		
Hysterectomy (LAVH)	68.51	LCD11		
Repair of cysto- and rectocele	70.5	LEF		
Knee arthroscopy	80.26	NGA11		
Arthroscopic meniscus	80.6	NGD01, NGD11		
Removal of bone implants	78.6	NBU,NCU,NDU,NFU, NGU, NHU		
Repair of deform. on foot	77.51 – 77.59	NH		
Carpal tunnel release	04.43	NDM09,NDM19		
Baker cyst	83.39	NGM39		
Dupuytrens contracture	82.12	NDF02, NDF12		
Cruciate ligament repair	81.43, 81.45	NGE35, NGE36, NGE45,NGE46		
Disc operations	80.5	ABC		
Local excision of breast	85.21, 85.12	HAB00,HAB10 HAB40,HAB99		
Mastectomy	85.4	HAC		
Laparoscopic cholecystectomy	51.23	JKA21		
Laparoscopic antireflux	44.64 – 44.66	JBC01		
Haemorrhoidectomy	49.43 – 49.46	JHB		
Inguinal hernia repair	53.0 – 53.1	JAB		
Circumcision	64.0	KGH10, KGH80		
Orchidectomy + -pexi	62.3 – 62.5	KFH00, KFH10, KFC		
Male sterilisation	63.7	KFD43, KFD46		
TURP	60.2	KED22		
Colonoscopy w/wo biopsy	45.23, 45.25	UJF32, UJF35		
Removal of colon polyps	45.42	JFA15, JFA17		
Varicose veins	38.5	PHB10 – PHB14, PHD10 – PHD15		
Bilat: breast reduction	85.32	HAD30, HAD35		
Abdominoplasty	86.83	QBJ30		
Pilonoidal cyst	86.21	QBE10		

Annexe 2. List of the same tariff GHMs introduced from 2012

Introduction of same tariff for some J GHMs

Table 13. New GHMs with same tariffs from 2012

GHM term	Root code Severity 1 or J	Single tariff Ex-BB	Single tariff OQN
Retinal procedures	02C02	2,577.05	1,212.8
Primary iris procedures	02C06	1,179.04	616.84
Other intraocular procedures apart from severe conditions	02C11	1,189.98	651.28
Rhinoplasties	03C09	1,614.46	781.98
Creation and refashioning of arteriovenous fistulae for CMD 05 disorders	05C21	1,931.36	1,027.1
Localised bone resections and/or removal of internal fixation materials in a site other than hip or femur	08C14	1,253.11	593.44
Skin grafts for musculoskeletal or connective tissue system disease	08C20	1,785.89	654.04
Arthroscopy, other sites	08C40	2,319.09	1,265.4
Creation and refashioning of arteriovenous fistulae for CMD 11 disorders	11C09	1,823.59	1,022.92
Procedures on the testes for non-malignant conditions, age over 17 years old.	12C07	1,307.24	667.66
Dilatation and curettage, cone biopsies for malignant tumours	13C11	984.01	327.24
Skin grafts for non-burn lesions	21C02	1,830.10	1,000.72

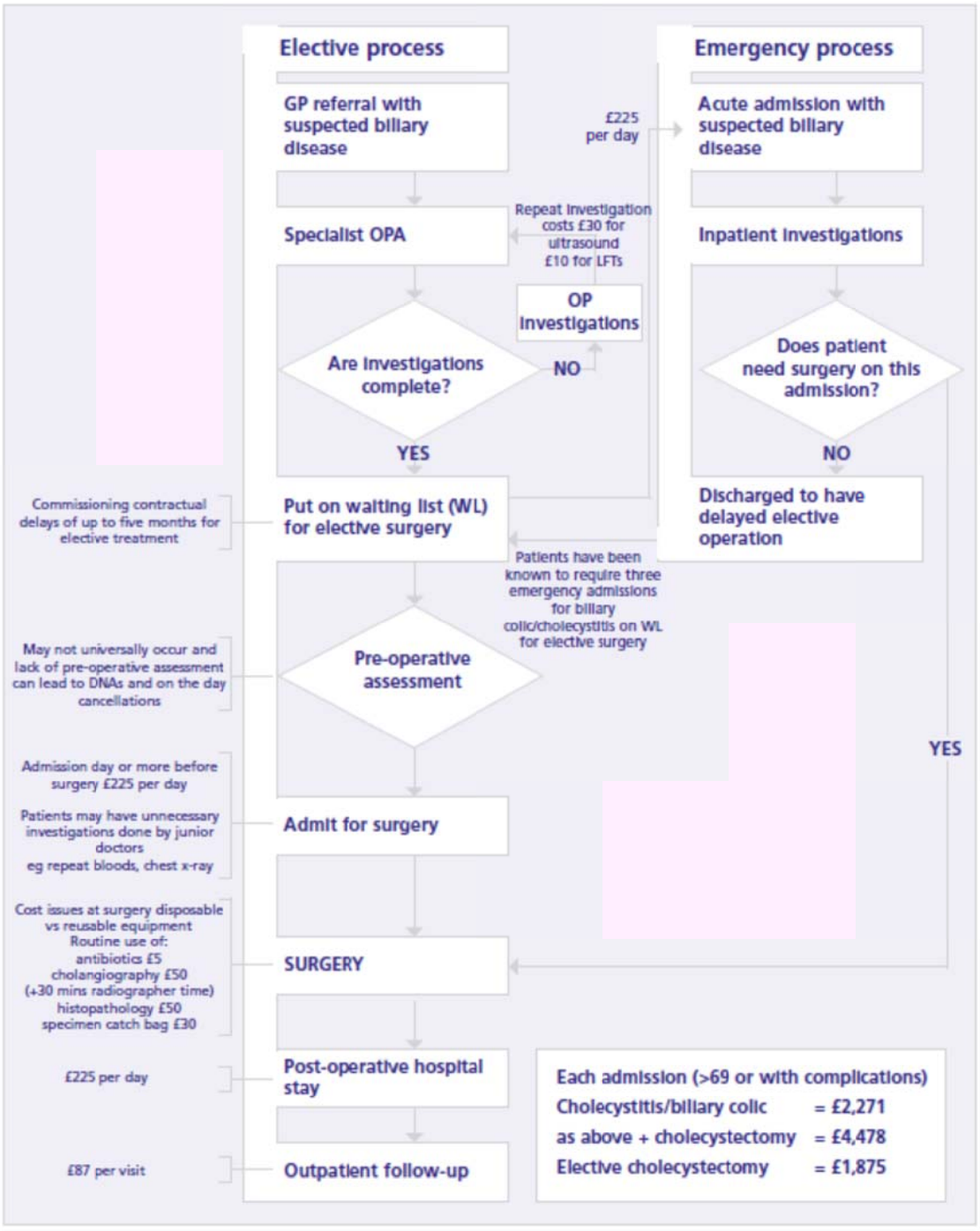
Creation of new J GHMs and introduction of same tariffs in 2012

Table 14. New J GHMs with same tariffs from 2012

GHM term	Root code Severity 1 or J	Single tariff Ex-BB	Single tariff OQN
Implantation of spinal stimulator	01C10	2,234.71	895.6
Facial osteotomies	03C19	3,876.22	1,855.74
Amputations for circulatory disorders on the upper limb or toes	05C13	2,342.80	870.87
Cholecystectomy without investigation of the common bile duct except for acute disorders	07C14	2,480.60	1,439.31
Maxillo-facial procedures	08C28	2,665.11	1,571.18
Transurethral prostate surgery	12C04	2,859.22	1,824.61
Female genital tract repair procedures	13C04	2,847.92	1,822.5
Debridement of wounds other than for burns lesions	21C03	1,956.80	569.03
Non-extensive burns with skin graft	22C02	6,435.03	3,772.3

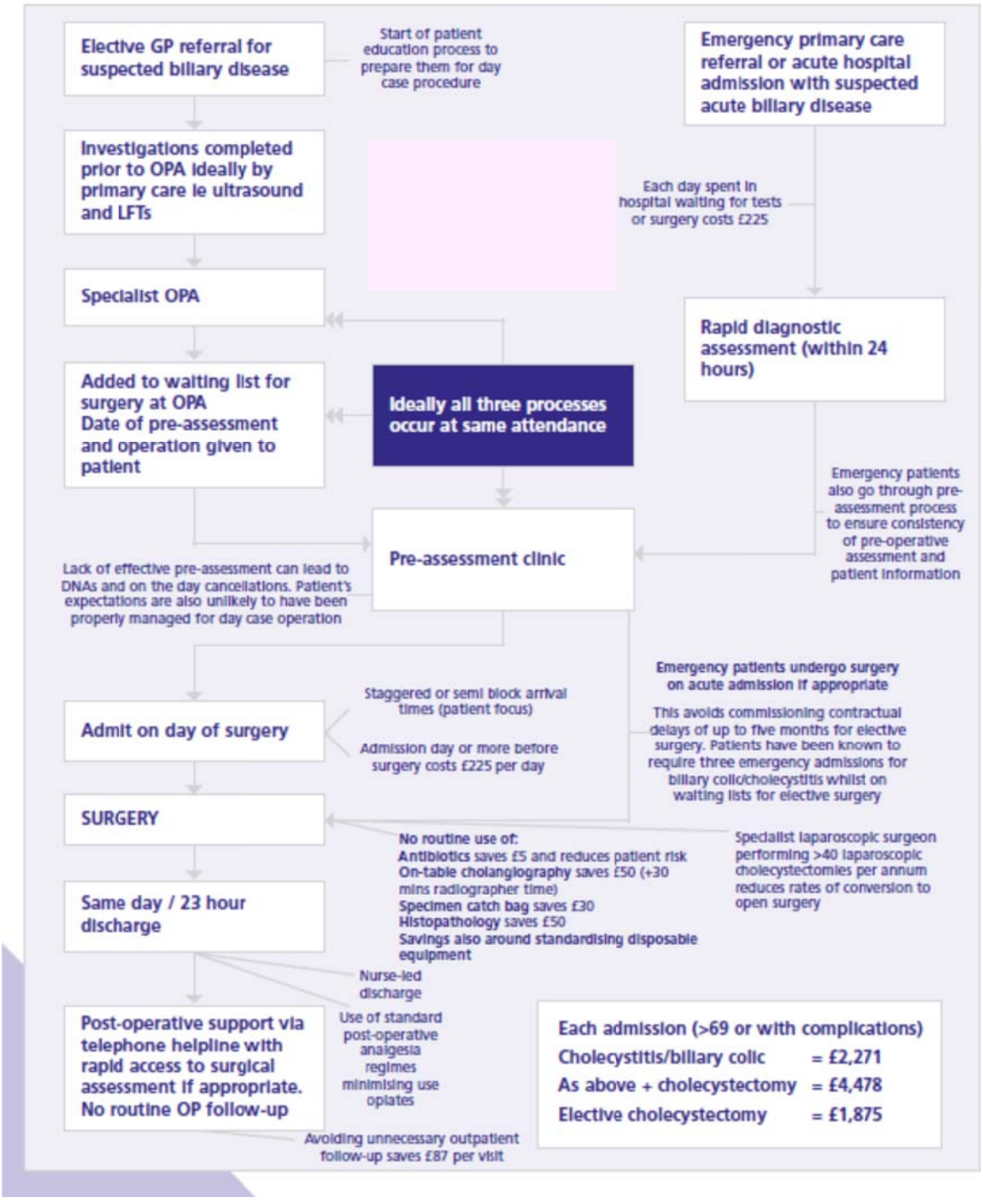
Annexe 3. Comparison between current procedure and recommended procedure for cholecystectomy in Great Britain

Current procedure



Source: (126).

Recommended procedure



Source: (126).

Annexe 4. Participants

► Project team

The literature analysis and writing of the scientific justification were carried out by Mrs Isabelle HIRTZLIN, project manager at the Economic and Public Health Assessment Department, under the supervision of Mr. Olivier SCEMAMA, Deputy Head of Department and Madame Catherine RUMEAU-PICHON, Head of Department.

The document search was carried out by Mrs Emmanuelle BLONDET, literature scientist, with the assistance of Mrs Yasmine LOMBRY, under the supervision of Mrs Christine DEVAUD, deputy head of department and Madame Frédérique PAGÈS, Head of Department.

Logistics organisation and secretarial work were carried out by Mrs Sabrina MISSOUR.

► Methodological support group

Mr. Gilles BONTEMPS, Associate Director, ANAP, Paris

Mrs Michèle BRAMI, Project Lead, ATIH, Paris

Mr. François DEMESMAY, Deputy Director General, Capio Santé, Villeurbanne

Dr. Adrien DOZOL, Public Health-Health Economics Physician, CHU Lariboisière, Paris

Dr. Véronique GILLERON, Public Health Physician, DIM, CHU Bordeaux

Mrs Anne HEGOBURU, Paris West University Hospitals Research, Finance and Efficiency Unit Director, Paris

Mrs e Zeynep OR, Health Economist, IRDES, Paris

Mrs Martine PERES-MORRIS, Retired from DAF, Lafourcade Clinic, Bayonne

Mr. Jacques PORTIER, Patient representative, Confédération française des retraités (French Confederation for Retired People), Tours

Dr. Stéphane QUESNOT, Director DIM of the Generale de santé, Paris.

Dr. Alain ROUMAJON, DIM Physician, Groupe Vitalia, Paris

Mrs e Adeline TOWNSEND, Project Leader, ATIH, Paris

► Reading Group

For the Société française d'anesthésie et de réanimation (SFAR [French Society for Anaestesia and Intensive Care]):

- Prof. M. BEAUSSIER (Chairman of the Day Surgery Committee), Dr. MP CHARIOT, Dr. L. DELAUNAY, Dr. F. MARCHAND-MAILLET, Dr. P. NICOLAI;

- Dr. Marc GENTILI, Anaesthetist-Intensive Care Physician and Member of the SFAR Administrative Council, Saint-Grégoire Public Hospital, Saint Grégoire.

For the Association française de chirurgie ambulatoire (AFCA [French Day Surgery Association]):

- Prof. C. VONS, Professor of Gastrointestinal Surgery and General Secretary of the Association française de chirurgie ambulatoire.

For the Académie nationale de chirurgie [French National Acadamy for Surgery]:

- F. RICHARD, President of the Académie nationale de chirurgie.

► Public Health and Economic Assessment Committee (CEESP)

The CEESP appointed four *rapporteurs*: MM. Benoît DERVAUX, Pierre-Louis RÉMY, Luc VANDROMME, Richard DOUARD.

CEESP through Mr. Philippe MOSSE also ensured that all of the recommendations for the different areas of the surgery programme were consistent.

Annexe 5. Description sheet

TITLE	Day surgery tariffs in France and in other countries. Current situation and future perspectives
Working method	Position statement.
Date put on line	June 2013.
Date printed	Only available in electronic format.
Objective(s)	To produce a summary of the tariff methods for day surgery used in France and in other countries and to propose solutions to increase tariff incentives to promote the development of day surgery in France and increase its efficiency.
Professional(s) concerned	Senior managers, administrators and financers for hospitals, DIM doctors, surgeons, anaesthetist-intensive care physicians.
Requested by	Direction générale de l'offre de soins (DGOS [Directorate-General for care offering]).
Sponsor	Haute Autorité de Santé (HAS [French National Authority for Health]), Public Health and Economic Assessment Department
Project steering	Writing and coordination: Madame Isabelle HIRTZLIN, Project Manager at the Public Health and Economic Assessment Department (Head of Department: Madame Catherine RUMEAU-PICHON). Secretariat: Madame Sabrina MISSOUR. Document researchers: Madame Emmanuelle BLONDET, with the assistance of Madame Yasmine LOMBRY (Head of Documentation department: Frédérique PAGÈS).
Participants	Learned societies in surgery, organisations (ATIH and ANAP), DIM physicians, managers and health economists, cf. list of participants. The participants in the methodological support group sent their declarations of interest to HAS.
Document search	January 2000 to March 2013; 652 articles identified, 146 accepted and analysed.
Authors of the justification	Isabelle HIRTZLIN, Economist, HAS Project Lead, Saint-Denis La Plaine
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