



Approaches for Cost and Price Assessment in the Danish Health Sector

A description of the approaches used in practice in the Danish health sector to cost and price health services

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Preface

This report describes the practical approaches to cost assessment and pricing applied in 2005 in the Danish health sector. The report has been elaborated in summer 2005 by the DSI- Danish Institute for Health Services Research as part of Work Package 6 of the EU funded research project, “HealthBASKET, Health Benefits and Service Costs in Europe ” (EU-contract No. SP 21-2004-501588 under the sixth Framework Programme).

Authors of this report are Anni Ankjær-Jensen (Chapter 2 on payment principles in the hospital sector, contribution to final discussion in chapter 7) and Lone Bilde (chapter 1: introduction, and chapter 3-6, payment principles for out-patient care, rehabilitative care, long-term nursing care, patient transport services and contribution to the final discussion in chapter 7).

1 Introduction

1.1 Context of the Report

This report describes the payment systems, pricing strategies, and methods for costs assessment currently applied in the Danish health sector. The report is a deliverable relating to the EU financed research project on international comparison of health costs, “Health Basket”. As part of the research project, this report is preceded by a report outlining the health benefits and entitlements available to the Danish citizens¹. Where it is found appropriate there will be references to that report.

As in the previous report, the health sector definitions used follow the OECD classification of health services including a number of long-term nursing care services, which often in the Danish context are referred to as social services.

For the health sectors described, the report seeks to answer the following questions asked as part of the research project:

1a Are there official prices or tariffs?

- main characteristics of price regulation?
 - i. fixed prices /maximum prices/quasi-official prices. Reimbursable (allowable) non-reimbursable price regulation eg. research activities
 - ii. Excluded components from reimbursement (eg. capital costs, pharmaceuticals)
- Unit for payment (i.e. level of aggregation – single item, day case, department budget .. hospital /practice budget
- at which level are prices set or negotiated (national, regional local, provider)
- Is it possible for a provider to get different prices from different authorities? (eg. health authorities /sickness funds/governments).
- Is it possible for a purchaser to pay different prices to different providers
- which actors are involved in the establishment of prices?
- Do prices vary depending on non-economic factors, eg. sanctions for exceeding amount of services agreed?

1b How are prices updated?

- are there fixed update appointments (yearly, bi-yearly)
- Do providers or purchasers have the possibility to request update of prices
- How accurate are updates done
- what is the major drive behind upgrades

1c How are costs of services established?

- which units are used to quantify resource consumption?
- which sources are used to assess resource consumption?
- which sources are used to establish monetary value?
- How accurate are cost assessments?
- which actors perform and/or use cost assessment

The logic and order of the questions is not always followed in the report.

1.2 Terminology and Perspective

1.2.1 Costs versus prices

The following definitions are used in the report:

“Costs” are defined as the monetary value attached to the resources used by a provider to deliver a certain service.

“Prices” refer to the amount of money that a purchaser (i.e. county, municipal authority or the state) (plus the patient when cost-sharing is required) has to pay to obtain a service, respectively the amount of money that a provider will receive for delivering a service (the amount that a provider receives can be due to differences to VAT).

1.2.2 Perspective

The perspective of the report is that of the purchaser, that is the party which buys or pays for the service from one or several providers. In the Danish case, providers and purchasers may often be identical. However, due to agreements about the division of labour between counties and municipalities for certain long-term services, a wide possibility for the patient of free choice of provider, and the use of private providers for some health sectors, there are several situations where the purchasers and providers are not identical, and where a service exchange releases a payment.

1.3 Information Retrieval Process

The following sources of information have been used in the report:

- Legislation, to the extent it describes the financing schemes
- Background information, and previous work from the authors
- Grey literature (reports, letters, declarations etc from authorities involved)
- Guidelines on costing
- Personal communication with relevant contact persons in the Ministries, Association of County Councils and Association of Municipal Councils

1.4 Structure of Report

The report is structured according to the financing system applied in Denmark, and the OECD health sectors. After this introductory chapter, Chapter two deals with the payment system and approaches to costing applied in the hospital sector. Chapter three describes pricing and cost assessment for out-patient services under the Health Care Reimbursement Scheme. Chapter four briefly outlines the financing of rehabilitative services and Chapter five describes the basic tariff financing model applicable for long term nursing care services. Chapter six provides an outline of the payment contract (s) used for patient transport and Chapter seven sums up and discusses the Danish approaches for pricing and cost assessment.

2 Payment systems, and approaches for price setting and costing in the hospital sector

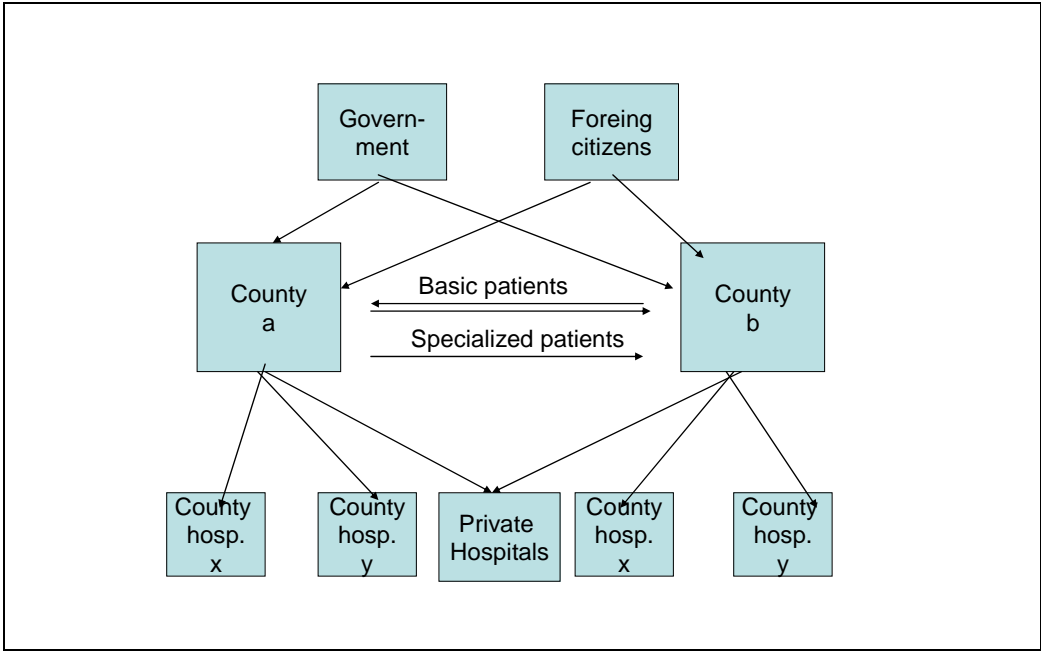
2.1 Payment principles: introduction

This section outlines the price regulation mechanisms between different purchasers and providers in the Danish hospital sector. The description covers all hospital services including in-patient care, day cases and ambulatory visits. Also, the description covers the somatic care as well as the mental care.

The payment principles depend on who is the purchaser and who is the provider, and to some extent on the level of treatment (specialised, not specialised treatment). Therefore, the following section is structured according to the different payment relations (“markets”).

The different payment relations for somatic hospital care are summarised in figure 1 below.

Fig. 1 Payment relations in the Danish hospital sector



2.2 Payment between counties

As described in the previous report¹, the provision of hospital services (somatic as well as mental) is the responsibility of the counties, who own and run their own hospitals. Therefore, generally the provider and the purchaser of hospital services are the one and same authority (no purchaser/ provider split). However, citizens may in some cases use hospital services provided by hospitals owned by other counties, and then the foreign county is the provider and the home county is the purchaser (on behalf of its citizens). When citizens are treated in hos-

pitals outside their home county, there is a payment between the two counties, and the unit of payment as well as the prices are regulated by the government².

Citizens' use of hospital services in another county's hospitals may occur in two situations:

- B. The citizen has made use of his right to free choice of hospital, and has chosen to be treated in a hospital outside his home county.
- C. The patient needs (is referred by a doctor to) a specialised treatment, which is only available at a specialised (university) hospitals situated outside his home county.

In both cases, the payment is carried out between the counties. However, the payment principles are *not* the same in the two situations³.

2.2.1 Payment between counties for patient treated at basic level

2.2.1.1 Somatic patients

Patients not treated at a specialised level are referred to as “*basic patients*”³. The payment units for basic patients are the groups defined in the Danish case-mix system (described in detail in¹). In-patients are paid for according to the DkDRG (Danish Diagnosis Related Groups) and day cases/ ambulatory care are paid for according to the DAGS (Danish Ambulatory Grouping System).

The price for each DRG and DAGS is determined at national level. The price covers all hospital costs except research, depreciation and capital costs. Certain DRGs, which can be treated as in-patients as well as day cases, have been defined as “grey zone” DRGs. A patient in grey zone groups is paid for according to a grey zone price, irrespective of him/her being treated as an in-patient or as a day case. The grey zone price lays somewhere between the cost of in-patient care and the cost of a day case.

In addition to the DRG-tariff, there is an outlier payment for patients with a length of stay above a certain tripoint. Furthermore, for certain ambulatory visits (DAGS) there is supplementary payment for a specified list of expensive consumables (hearing aids, expensive pharmaceutical and expensive medical aids).

Counties may on a bilateral basis make a price agreement that differs from the payment rules decided by the government. If for example, two neighbouring counties have decided to cooperate, so that i.e. one county supplies one speciality and the other county supplies another speciality, they may have agreed not to charge a payment for their respective citizens' use of the specialities in question.

As a fixed price at national level is determined, the prices are the same for all providers and for all purchasers (with the exception of patients covered by bilateral agreements).

National prices for patients at basic level (DRG and DAGS tariffs) are determined at national level by the National Board of Health, on behalf of the Ministry of Interior and Health.

Prices for payment between counties do not vary dependent on non-economic factors.

The DRG/DAGS tariffs are updated every year. The updating is based on a recalculation of costs. The updating also reflects the ongoing refinement of the Danish case-mix system as well as the introduction of new technologies.

The cost calculations on which the DRG/DAGS tariffs are based, as well as the process for updating of tariffs, are described in detail in section 2.6.

2.2.1.2 Mental hospital care

As DRG-groups for psychiatric patients have not yet been developed, *mental care* is paid for at a fixed price per bed day or a fixed price per visit (day-case/ambulatory visit). The price is determined at national level.

The price is updated on a yearly basis by a percentage reflecting increase in prices and wages (inflation).

The tariffs per bed day and ambulatory visit are not based on a cost calculation.

2.2.2 Payment between counties for specialised hospital treatment

Payment principles for specialised hospital treatment are regulated by the government².

According to the regulations, patients treated at *specialised hospitals* (typically university hospitals) are paid for according to units defined by the individual hospitals themselves (bed-days, laboratory tests, surgical procedures etc). The price for each unit of payment is based on actual costs and calculated by the hospitals themselves. According to the rules, the prices should include total hospital costs including capital costs and depreciation.

The prices are uniform for all counties who purchase specialised hospital services at the hospital in question, so it is not possible for a provider to get different prices from different purchasers.

In case more than one hospital offers a certain specialised treatment, the price may vary from hospital to hospital, so it is possible for a purchaser to pay different prices to different providers¹.

In practice, the county will make an agreement (a contract) with a supplier for one year at a time. The agreement will contain a specification of the prices and the amount of services that the county will purchase at the hospital in the following year. In order to minimise the financial risks, both the hospital and the county has an obligation to try to stay within the agreed amount of services.

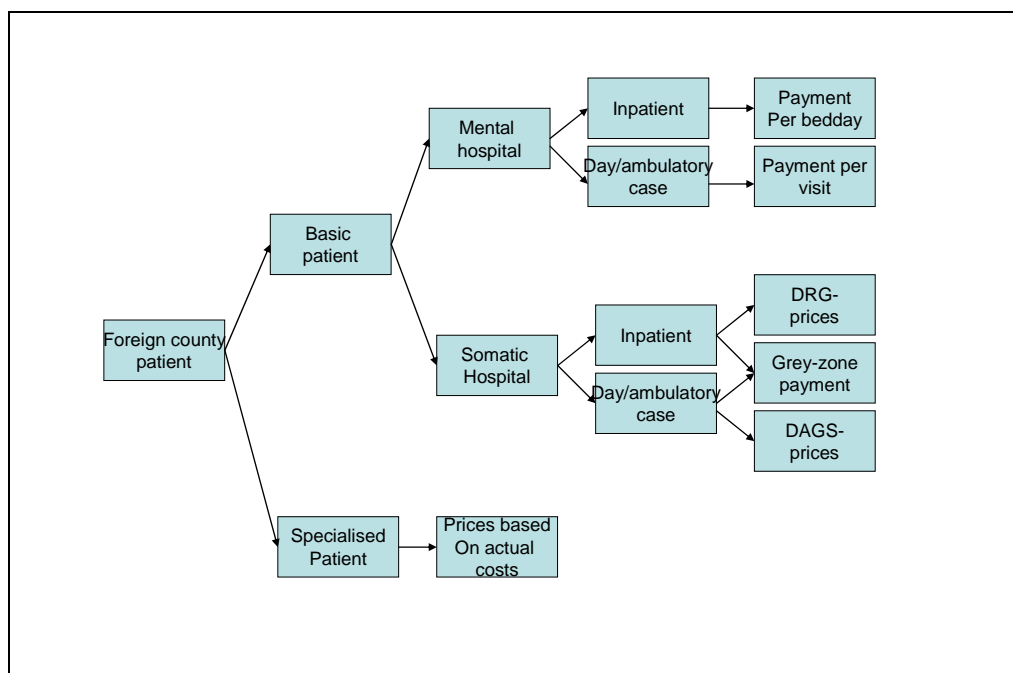
The prices for specialised treatment are updated on a yearly basis by the individual hospital. The updating reflects the introduction of new treatments as well as a recalculation of costs per service unit.

The actual costs calculation is based on step down process where total costs (annual report of preceding year) in a step down process are allocated to the payment units defined. However, the actual allocation method varies between the different hospitals.

The principles of payment between counties are summarised in figure 2 below.

¹ However, as units of payment defined and the costs included in which units may differ between hospitals, in practice it may be difficult for the counties to compare the prices they have to pay at two different hospitals.

Fig. 2 Principles of payment for hospital services between counties



Source: Takstsystem 2005. Vejledning. Sundhedsstyrelsen 2005.³

2.3 Payment between the government and the counties

With the aim of increasing the hospital activity in order to reduce waiting times, for several years the government has provided a special block grant to the counties⁴. The grant is distributed to the counties as activity based financing of activity above a defined baseline. The payment unit is the Danish case mix system, and the price is 70 % of the national DRG/DAGS prices⁵.

The size of the grant is decided every year by the government, and then divided among the counties, so that for every county, a baseline and a maximum payment from the grant are defined.

2.4 Payment between the county and the county hospital

The principles of payment for public hospitals are decided on county level and traditionally, counties have been financed by global budgets. However, during the last 5 - 10 years, activity based financing has played an increasing role in the financing of the hospitals. This is partly due to an encouragement from the government, partly due to the development of the Danish case-mix system.

More and more counties are passing on the income from *free choice patients* to the hospitals which have been treating the foreign-county patients⁶. As described earlier, the payment between counties for free choice patients is based on national DRG prices, and the payment to the hospitals may be either the full income (which means 100 % DRG) or a percentage of the DRG-price.

Furthermore, it is a condition that payment from the *government bloc grant* (aiming at increasing hospital activity), at least to some extent, should be passed on to the hospitals producing the extra activity. Most counties use DRGs to transfer the bloc grant income to the hospitals (typically retaining a percentage of the DRG-payment from the government for general purposes). Other counties negotiate special activity projects with the hospitals (i.e. for treatments with long waiting lists) and pay the hospital a prospectively negotiated marginal cost for the extra activity.

Finally, it is agreed between the government and the counties that from 2004 hospitals have to be financed partly through a global budget and partly through payment for activity². It is up to the county to decide how to implement the activity based financing: which payment units and which prices to pay.

Most counties have applied a model consisting of a fixed budget covering i.e. 70 % of normal activity, plus a variable budget depending on activity produced using DRG/DAGS as payment system. The counties use different percentages of the national DRG-prices⁷ for the variable part of the budget.

In order to control expenditures, most counties have imposed a ceiling on the amount of money that can be paid to the hospitals. Another way for counties to control the hospital expenditures is to reduce the percentage of DRGs reimbursed when the activity exceeds a certain level.

2.5 Payment of private hospitals

2.5.1 Extended free choice patients

Private hospitals determine their own prices. However, in case the counties are paying for its citizens' use of a private hospital as part of the extended free choice of hospital³ programme, the county - or the Association of County Councils on behalf of the all the counties – has pre-negotiated a unit of payment and a price with a number of hospitals that the patients can choose from.

The unit of payment is generally based on the Danish case-mix system, and the price a percentage of the national DRG/DAGS tariff. A typical price is 90% of the national price.

Prices and units of payment are updated every year.

2.5.2 Special hospitals

According to the Hospital Act⁴, patients have a free choice of treatment at a number of specific private so-called “special hospitals”. The hospitals offer treatment of patients with a range of specific diagnosis, such as epileptic patients, patients with sclerosis, arthritis or muscular atrophy. The group of Special Hospitals also include rehabilitation centres and hospices.

² At least 20 % of the hospital turnover has to be based on the activity provided.

³ If the county cannot offer treatment within a period of 2 month, the patient has a right to choose treatment at a private hospital, in Denmark or abroad. (Hospital Act)

These hospitals offer treatment that falls under the OECD classification of long-term nursing care. However, as they are regulated by the Hospital Act, the price approaches applied for these hospitals are described here.

The payment unit for private special hospitals varies, but is, in most cases, a payment per bed day.

Running of the private special hospitals is the responsibility of the county in which the hospital is located. The payment is negotiated between the hospital and the county. The negotiated price is the same for all counties.

The Ministry determines a maximum for the total amount of money that the counties are obliged to pay to each special hospital each year. The amount is updated yearly, in order to adjust for increase prices (inflation).

The price per bed day is based on an assessment of the expected cost per bed day. The cost is calculated yearly by dividing the budget for the coming year by the expected number of bed days to be produced. In case the hospital one year has had a surplus, the surplus may be used to reduce the price for the next year⁹.

2.5.3 Foreign Patients

Payment for the treatment of foreign citizens are regulated by the government².

According to the rules set by the government, foreign citizens treated in Danish hospitals are charged the same prices as domestic patients, that is according to the rules for payment between counties.

If the patient is treated at basic level, the price equals the DRG/DAGS tariffs and if the patient is treated at special level, the hospital may charge the same prices as for domestic patients. If the treatment/service is not covered by existing tariffs the hospital may calculate its own price¹⁰.

The different payment relations and the payment principles are summarised in the table 3 below

Table 3: Payment principles in different purchaser/provider relations in the Danish hospital sector.

<i>Purchaser</i>	<i>Provider</i>	<i>Payment</i>	<i>If DRG/-DAGS: % of tariff</i>
County	County	<i>Basic patients:</i> Somatic hospital: DRG/DAGS Mental hospital: Bedday/visit <i>Specialised patients:</i> Varying units, cost based prices	100%
State	County	DRG/DAGS	70%
Foreign citizens	County	As for county/county	
County	County hospital	Varies between counties, but mostly DRG/DAGS	Varying
County	Private hospital	<i>Extended free choice patients:</i> DRG/DAGS <i>Special Hospitals:</i> DRG/DAGS or per bed day	Varying

2.6 Calculation of the tariffs attached to the Danish case-mix system

2.6.1 Introduction to the cost model

As it appeared in the preceding section, the Danish case-mix system, DkDRG and DAGS, plays a major role in the payment relations between the purchasers and providers in the Danish hospital sector. The following section contains a description of the costing process leading to the formation of the tariffs associated with the case-mix system.

The tariffs attached to the Danish case-mix system reflect the average costs associated with treating the patients in each individual group. The costs include all hospital costs except research, depreciation and capital costs.

The average costs of each individual group are calculated by the National Board of Health on the basis of data from a cost database containing cost data from almost all public (somatic) hospitals⁴.

The costing is based on cost information on each single patient contact⁵ taken place at the hospitals included in the cost database. Costing of each patient contact is carried out by aggregating the costs of the services⁶ consumed by the patient during the contact (i.e. bed days, x-rays, laboratory tests).

⁴ Since 2003 it has been mandatory for all public hospitals to deliver cost data to the National Board of Health every year.

⁵ A patient contact may be an in-patient stay or a visit in a hospital ambulatory (including day-cases). Source: see reference 11.

⁶ Services means intermediate hospital output such as diagnostic tests, procedures and bed-days.

The costing process involves the following steps¹²:

1. Calculating the cost of the services produced by the hospital, based on a step-down accounting
2. Adding up the services consumed – and thereby the costs - per patient contact, using a patient record of services consumed.
3. Grouping the patient contacts into DRG (in-patient, day cases) or DAGS (ambulatory visits), using patient records containing the necessary grouping characteristics
4. Calculating average cost per DRG/DAGS

In other words, the model implies that it is possible, systematically to link information concerning the services - and thereby costs consumed - to the individual patient contact.

However, since the patient-related cost data available may vary between hospitals, the calculation is based on a robust cost model, implying that the *accuracy* of the resulting cost per patient may vary between hospitals. In the one extreme, a hospital may be able only to collect information on the number of bed-days, or ambulatory visits per individual patient contact. In the other extreme, hospitals may be able to link bed-days as well as procedures, examinations and tests to the individual contact.

Step 1. Costing hospital services/output

The costing process involves the allocation of total hospital costs to total number hospital services produced, according to guidelines specified by the National Board of Health¹². The cost calculation process consists of the following steps:

Step 1: Definition of costs centres.

Depending on the departments and thereby the responsibility centres defined at each individual hospital, the total hospital costs are divided among cost centres. Two different types of cost centres are defined:

Final cost centres: Cost centres whose output can be linked directly to a specific patient contact.

Intermediate cost centres: Cost centres whose output cannot be traced directly to a patient contact.

Which cost centre is final and which is intermediate depends on whether the output of the cost centre can be linked to a specific patient contact. This again depends on whether the services produced in the cost centre, via an information system, can be linked to specific patient contacts.

Some hospitals have many information systems, while others have very few. All hospitals, as a minimum, are able to link the number of bed days, number of ambulatory visits, surgical and some medical procedures, to the specific patient contact⁷.

⁷ This is due to fact that all hospitals have to collect a minimum amount of the data for all patients treated in somatic hospitals (minimum basic data set)

In addition, some hospitals may also have information systems for ancillary services such as radiological departments, laboratory and pathology. If the information systems allows the specific test or examination to be linked to a specific patient contact, these departments are defined as final cost centres, if not, these departments are categorised as intermediate cost centres.

Step 2: Allocation of from intermediate cost centres to final cost centres

The next step in the cost model is to allocate costs from the intermediate cost centres to the final cost centres. This is done in a step down process, one cost centre at a time, starting with the cost centres with the lowest degree of patient contact.

The allocation is based on allocation keys for each single cost centre, chosen individually by the single hospital. The allocation keys have to indicate as accurately as possible the use of resources of the final cost centres in the intermediate cost centre in question. In practice, however, the allocation keys used will depend on the information available at the individual hospital. In some cases, information on the actual use of resources may be used for allocation, in other cases it is necessary to use the final cost centre gross costs as allocation keys.

Step 3: Calculation of cost per unit of service produced

After the completion of step 2, the total hospital costs have been allocated to the final cost centres. The next step then is to calculate the cost per unit of service produced in each final cost centre. The unit of services defined (cost objects) do of course vary from one cost centre to another, depending of the kind of services produced. For ancillary services, the cost objects may be clinical classifications such as a classification of surgical procedures, classification of radiological procedures etc. For clinical departments (in-patients) the cost objects will be bed days, for ambulatories and day case departments the cost unit will be ambulatory visits or day-visits.

If the cost unit of the cost centre is *not homogenous according to resource use*, the costs are allocated to each single unit of service via relative cost weights (or points) reflecting the relative costs of producing the different services produced. This is the case for most ancillary services such as x-ray, laboratory tests and surgical procedures. At national level, relative cost weights (or point systems) are calculated for the following types of services

- Surgical procedures
- Anaesthesia
- Clinical biochemistry
- Radiology
- Pathologic anatomy
- Physiotherapy and ergotherapy

The cost studies on which the relative cost weights are based, have been carried out on the initiative of the National Board of Health, often in collaboration with the relevant medical speciality association. The methods used to establish the relative costs weights are described in a later section.

As a supplement to the national point systems, a few of the larger hospitals have their own systems for weighting services. This may be the case i.e. for the use of intensive care.

If the cost unit *is homogenous according to resource use*, or if a point system has not (yet) been developed, the cost per unit is calculated simply by dividing total cost by total number of cost units produced.

Step 4: Aggregation of cost per patient

After having calculated the cost per service produced, it is now possible to calculate the cost of each single patient contact by aggregated the services and thereby the cost consumed during the contact. The calculation is based on patient records containing information of services linked to the specific patient contact.

Step 5-6: Grouping of patient contacts and calculation of average cost per group

After having calculated the cost of each single patient contact, all patient contacts are now grouped into DRG or DAGS depending on whether the patient was an in-patient or a day case (ambulatory) patient. The grouping is based on patient records containing the necessary grouping criteria and the computed cost-information. While the preceding steps were carried out at hospital level, this step is performed at national level, including patient records received from the hospitals included in the national cost database. The grouping results in calculation of an average cost per patient per DRG or DAGS.

2.6.2 Methods for calculating relative costs weights for ancillary services

In order to be able to measure costs of ancillary services at patient level, a set of relative cost weights have been developed for a number of ancillary services. The cost weights, which have been developed on the initiative of the National Board of Health, reflects the resource use of a single unit of service relative to other service units produced by the particular ancillary service. Often the service units defined are a clinical classification for the ancillary services in question.

The cost-weights are developed because the output (costing unit) of many of the ancillary services, are not homogenous according to resource use, meaning that the different output may have a different use of resources. The cost weights are expressed as a number of points attached to each single output unit.

By the use of the point system, the cost per service unit at each individual hospital is calculated the following way: On the basis of total costs allocated to the ancillary department in question, and the total number of points produced by the department, a cost per point produced is calculated. Finally, the point attached to the service units is multiplied with the cost per point.

The following sections outline the methods that have been used to establish the point systems used at national level.

2.6.2.1 Anatomic Pathology

In order to establish a national Anatomic Pathology Register covering all anatomic pathologic (in the following called pathologic) examinations carried out in Denmark, the National Board of Health has determined standards for a minimum basic dataset (MBDS) for Anatomic Pathologic information systems. The dataset is described in a report from National Board of Health¹³. Although participation in the national patient registry is voluntary, all pathologic

departments in the public hospitals do deliver data to the registry. And also some private practicing pathologists have started to deliver data.

Attached to the MBDS is a system of points reflecting the relative use of resources for different kind of examinations.

The cost unit in the point system is a pathologic examination. The examinations are defined by the characteristics that determines the resource use: type of material (total of 21 types defined with the main groups: histology, cytology, autopsy) plus type of working procedures carried out at the individual examination (in total 12 different working procedures have been defined).

For each combination of type of material and working procedure, a number of points have been estimated, reflecting the time consumption for each of the following types of staff: physician, laboratory technician, secretary and service employee. The point system is based on time studies carried out at 4 hospitals, covering more than 30,000 observations. The point system only reflects labour costs while the cost of supplies is assumed to be equal to 15 % of labour cost. However, the points are used for calculating total average cost per examination, assuming that the relative use of staff reflects the relative consumption of other resources such as indirect cost of the department and the entire hospital.

2.6.2.2 Clinical biochemistry

A system of points has been developed for the cost units in clinical biochemistry. The cost units are the different kinds of laboratory requisitions according to the international IFCC-IUPAC nomenclature, which is a patient-related nomenclature for description of laboratory tests and their results⁸.

The points associated with each IUCC code is based on a cost study covering laboratories at 3 hospitals. The average total cost per test was assessed using an Activity Based Costing (ABC) approach¹⁴.

2.6.2.3 Radiology

A system of points reflecting the relative resource use for different imaging examinations, including: Radiology, ultrasound, MR- and CT-scans have been developed.

The cost units are the codes defined in the SKS classification⁹. The calculation of points is based on an ABC costing process carried out at radiological departments in 3 hospitals¹⁵. Among other things, the costing of each single examination was based on data concerning actual duration of examinations.

2.6.2.4 Surgery and Anaesthesia

The average total costs for *surgical procedures* in the Danish version of Nordic Classification of Surgical Procedures (NCSP) have been calculated. Afterwards, the total costs have been transformed to a set of relative cost weights.

⁸ Further description of the nomenclature can be found on www.labinfo.dk

⁹ The SKS- classification including the radiology part of the classification, is described in previous report, see reference 1

The costing was carried out as a mixture of bottom up and top down¹⁶. The bottom up part consisted on a calculation of the average direct cost for each procedure code including physician and nurse time use multiplied by their wage plus the value of expensive consumables such as implants. Data concerning the duration of performed operations were collected from existing electronic records at four hospitals. The median duration of surgery for each procedure code was calculated for each hospital. Staffing (number of nurses and doctors present) was estimated using expert group assessments.

The top down part consisted of an allocation of total indirect cost to the total number of procedures performed. The allocation key was total direct costs. Total indirect costs were estimated by subtracting total direct cost (direct cost of each procedure code multiplied by number of procedures performed) from total costs of the department.

The final step then was to sum up the average direct cost and average indirect cost to get a total cost for each procedure code.

A set of relative cost weights have been calculated for *anaesthetic services* as well. The costing method was generally the same as for surgery, and the cost unit chosen was the procedures defined in the NCSF. Direct costs were estimated on the basis of data concerning the duration of anaesthesia performed at four hospitals, and the median duration of each procedure code was calculated. Indirect costs were calculated by subtracting total direct costs from total costs of the anaesthesia department.

2.6.2.5 Ergo therapy (occupational therapy) and physiotherapy

The cost units for ergo therapy and physiotherapy are services and treatments defined in the SKS classification.

The costs of each treatment have been calculated through ABC-analyses carried out at 4 hospitals¹⁷. On the basis of the cost per treatment, a set of relative cost weights have been calculated.

2.6.3 From DRG/DAGS cost to DRG/DAGS tariffs

It is an overall objective that the DRG/DAGS tariffs as precisely as possible should reflect the exact (average) treatment costs. This implies that the tariffs are not based on a negotiation. However, as the costing process may be subject to some uncertainty, a process is established in order to ensure that the tariffs are as reliable as possible¹⁸.

After the costing process has been completed, the National Board of Health makes a first validation of the results in order to discover any mistakes in the calculation. In case the costing process results in an obviously wrong cost for a particular group (i.e. a group with few observations), the Board may initiate a micro-costing study at a hospital in order to calculate a more valid cost.

The result of this process constitutes the first draft for the coming years tariffs. The draft is sent to the DRG-Steering Group, consisting of representatives from the counties and the Ministry of the Interior and Health. The draft is also submitted for comments to the hospitals and counties at a general hearing. Any incoming comments are being considered and may result in a change in the tariffs. The final set of tariffs has to be approved by the DRG-steering group.

After the validation process, the DkDRG cost are transformed into relative cost weights, while the DAGS remain as average costs.

As mentioned earlier, for groups defined as grey-zone groups a special tariff is set. The grey-zone groups consist of patients that may be treated as in-patients as well as ambulatory patients (day cases). The grey-zone tariff is calculated as a weighted average between the DAGS cost and the DRG cost. The weighting reflects the frequency of the two types of patient stays.

2.6.4 Updating of DRG and DAGS costs

DRG and DAGS costs are updated every year on the basis of new cost information received from the hospitals. The updating may also include changes in the group structure recommended by representatives from the medical specialities, or initiated at the introduction of new technology. Finally, the updating may include the introduction of new Grey Zone Groups.

3 Out-Patient Services

3.1 Introduction

Out-patient services in Denmark are the primary care services provided by a number of private providers, including general practitioners (“GP”), privately practicing specialists and paramedics under the public health insurance scheme, the Health Care Reimbursement Scheme, described in¹.

Services are financed by this scheme which is administered by the county, who then acts as a third party payer on behalf of the patient.

In the 1970s, a system with many sickness funds with independent agreements with the private providers was abandoned and replaced by the public health insurance scheme which exists today. Although there is one national payment system, the payment system used today still carries many reminiscences of the old system.

3.2 Payment and pricing system

General practitioners are paid by the county through a combination of capitation fee and fees for service, and have furthermore usually a side income for private, administrative services including payment for health certificates by the municipalities and patients¹⁰.

The annual capitation fee is DKK 266.40 per year (2003) per person insured in Group 1 (see previous report¹) enrolled at the GP’s office. The average number of patients enrolled per GP office in 2003 was 1,514 persons. The division of GP income is app. 25% capitation fee and 75 % fees for service¹⁹.

Fees for service for GPs consist of a basic fee for consultation, which is always released at the patient contact (telephone consultation, office consultation, e-mail consultation), and supplementary fees for services, including (named) laboratory tests and examinations.

Specialists and paramedics are only paid through negotiated fees for service, which are linked to consultations or procedures.

The fees and tariffs are negotiated twice a year by the health professional trade unions and the Health Care Reimbursement Scheme Negotiating Committee, consisting of representatives of the counties. These negotiations are national and the remuneration of general practitioners, specialists and paramedics is the same throughout the country with a set of national prices and tariffs gathered in the fee schedule. Price differentiation is not possible, neither from the purchaser nor from the provider’s side.

¹⁰ certain health examinations and certificates are not part of the publicly financed benefit basket

Prices are updated semi-annually and regulated according to price /salary increases. A wish to change the tariffs or the payment system may be raised by one of the negotiation parties at any time, but negotiations take place only twice a year. The Minister for the Interior and Health has to approve any (major) change in the tariffs and payment system.

From the county representative side, it may be a condition that the total national expenditure with regard to the Health Care Reimbursement Scheme does not increase as a consequence of a change in fees. So, if a fee or the unit for payment is changed, a change has to be made elsewhere in the fee schedule to balance total expenditures²². Agreements with the professional associations therefore usually contain mechanisms to control or regulate the level of payment from the county.

For general practitioners an evaluation of the turnover of each GP is made every year, and if some GPs have a remarkably high turnover compared to eg. county average, an analysis to find explanatory factors eg. changes in visitation patterns, increases in specific services etc. is undertaken. If no reasonable explanation for the high turnover can be found, the county co-operation board may decide to impose a maximum ceiling on payment from the county on the particular general practitioner²².

Sometimes demands are made to specific trade unions to reduce the price of a service. Eg. in 2002, following an increase in the average payment per patient relating to free physiotherapy services the county representatives demanded a reduction of the fee²⁰. Within physiotherapy, there are two mechanisms for regulating the county's payment:

- either a collective reduction of the fee in case of increases in the average payment per patient which cannot be explained by relevant factors (eg. increased referrals from the hospitals of patients in need of rehabilitation.)
- or a control of the individual physiotherapist average remuneration per patient, which in the end may lead to a collective fee reduction²⁵.

This expenditure control mechanism is also applied for dentist services. However, the situation here is different due to a high level of user co-payment, which in itself puts a strain on demand and therefore rapidly increasing public reimbursement is not as common for dentist services as for the other specialities.

For specialists, according to the different agreements, the payment from the county is automatically reduced when the turnover for each specialist exceeds a certain pre-determined level, eg. for activity above the first limit ("knækgrænse"), payment is reduced by 25%, and for activity above the second limit, payment is reduced by a further 40%. The discount obtained by the counties through this system corresponded to 25 million DKK or app. 1.5% of the total reimbursement from the counties to specialists (according to a survey from 2003)²⁶.

Some counties whose capacity of specialists is lower than the actual demand for services may have individual agreements that are exempt of these reductions²⁵.

From the professional trade union side, there may be a wish to increase the income for the members, eg. currently the Association of General Practitioners claims that the basic fee for a patient contact of 108 DKK is simply too low considering a significant increase in the number of contacts, the current lack of general practitioners, and compared to fees paid for other services in society. They wish to increase the basis fee and to change of the payment system²¹.

3.3 Costing of out-patient services

The current level of fees is based on updates of old agreements on tariffs between the sickness funds and the private providers. As providers are private and subject to the confidentiality legislation for private companies, information on the actual cost of producing a service is not available. However, cost analyses for specific services are sometimes carried out by the different negotiation parties and used as documentation on an ad hoc basis but they are not part of a systematic or mandatory process. New technologies /treatments in general practice are evaluated by the Cooperation Committee under the HCRNC, and there is an increasing tendency to base their recommendations on evidence documentation also including eg.. cost-effectiveness analyses. Cost information may especially be used at the introduction of new types of laboratory tests, or other procedures involving equipment or utensils^{22, 23, 24}.

4 Rehabilitative Services (HC 2)

4.1 Introduction

Rehabilitative services in Denmark are either financed by the counties or the municipalities. The counties finance rehabilitative services that follow hospital treatment and rehabilitative services, eg. physiotherapy under the Health Care Reimbursement Scheme. The municipalities finance rehabilitative services not following hospital treatment, i.e. for maintenance purposes. In-hospital rehabilitation are priced and costed as part of the DRG system.

Out-patient physiotherapy under the Health Care Reimbursement Scheme are priced according to the central agreements between the Association of Physiotherapists/Association of Ergotherapists and the Health Care Reimbursement Negotiation Committee. These two cases follow the descriptions in chapter 2 and 3.

This chapter therefore deals with municipal rehabilitation only.

4.2 Payment system: municipal rehabilitative services

The rehabilitative services which are part of the municipal provision responsibility, are usually either carried out by a privately practicing provider (physiotherapist /ergotherapist) under the Health Care Reimbursement Scheme or by professionals employed directly by the municipality.

In the first case, the municipality pays for the services on behalf of its citizens according to the negotiated tariffs under the Scheme (see out-patient care). In the second case, the unit for payment is the annual budget reserved for municipal rehabilitation or an ad hoc cost assessment.

The municipal budget is negotiated every year between the local council consisting of politicians and the municipal board, and in this case there is no unit price or cost attached to the specific services. The patient /citizen may e.g. just be referred to municipal rehabilitation at a day care center, but there is no specific resource use attached to the visitation, e.g. number of hours per week to receive rehabilitation etc.

4.3 Costing of rehabilitative services

However, in some cases a price per person based on a specific cost assessment may be applied to pay for municipal rehabilitation. It may be that one municipality trades its day centre facilities including rehabilitative services with another municipality, and thus there has to be a payment transaction.

Also, according to the law²⁷, the municipality is allowed to include the costs related to rehabilitative services described in Social Services Act §71-75, in the calculation of costs for the services which are subject to basic tariff financing (see next chapter on long term nursing

care). This is usually based on a quotation from the municipality in each individual case, based on estimated resource use (face to face time plus material), valuated using average gross salaries /prices for the resource units and with an overhead for administration etc. added., e.g. this patient needs 7 hours of training by a physiotherapist per week²⁸

5 Services of Long-Term Nursing Care (HC 3)

5.1 Introduction

The payment /costing principles regarding long term in-hospital care including hospice care have been explained in Chapter 2 on in-patient care.

This chapter outlines the financing and costing principles used by municipalities and counties for the services that fall under the OECD classification of long-term nursing care. These services, which in the Danish context are usually perceived as social services, include:

- care in nursing homes and institutions, including mental nursing homes
- long term care provided by a nurse at home (home nursing services)
- specialised long-term treatment for the disabled, both on an in- and out-patient basis
- care for substance abusers

The responsibility for providing these services are split between the municipalities and the counties. As a general principle, the municipalities provide the less specialised services and the county the more specialised services and the law allows for purchasing services from other both private and public providers.

The financing responsibility lie mainly with the municipality, but also the county and the state (care for mentally retarded persons) finance some of the services. Many services are also co-financed by user payment. The following sections provide a description of the payment system and the pricing and costing principles under the “Basic Tariff Financing Model” which apply to services regulated by the Act on Social Services.

5.2 Basic Tariff Financing Model

This financing model is described in the Social Services Act (Chapter 26, p 129-135)²⁷, the guidelines VEJ 202 of 12/12/2001²⁹, on a website under the Ministry of Social Affairs³⁰ and in different agreements between the parties involved³¹⁻³⁵.

This financing model was introduced in 2002 as a replacement of the previous system with split financing responsibility for municipalities and counties. After a period of transition in 2002-2003, and although compensatory funding for municipalities who are hit hard by the new scheme are still available³⁶ the new model is now implemented in the municipalities. According to the Ministry of Social Affairs based on reports from the municipalities /counties³⁴, it has not led to an increase in costs or activities but administratively this system has provided better opportunities to manage costs than the previous system.

The financing model covers a wide range of public social services including services for children which do not fall under the OECD classification of health care. Therefore, only the services relevant to health care and subject to the financing model will be described here.

The main principle in the model is that the party responsible for providing the service according to the law, is also the party responsible for financing the service.

Thus, the municipalities finance the services provided for the elderly of 67 years and more of age and less specialised long term care services for all age groups, eg. home nursing services, and temporary institutionalisation. The counties finance the more specialised services eg. specialised long term day care treatment for disabled persons and treatment of substance abusers (the first 120 days).

However, in some situations, the municipality may choose to use a service which is provided by the county, and in these situations basic tariff payment applies. The municipality pays a fixed price to the county, but never more than the actual costs. The county pays any amount above the basic tariff, in case actual costs exceeds the basic tariff. The scheme was introduced as it was difficult to control costs in the previous split financing scheme and the fixed prices in the new scheme work as a ceiling for municipal costs. The financing scheme is applied on a national basis.

Under this model three payment situations apply³³:

Only one party involved. The municipality or county finances the services which they are responsible for according to the Social Services Act themselves. Often, the municipality finances 100% of the services aimed at the elderly and part of the services aimed at younger age groups/disabled people.

Two parties involved. Eg. the municipality pays for a service provided by the county or vice versa. In this case basic tariffs may apply.

Three or more parties involved. E.g. The municipality operates a service on behalf of the county and the service is used by several municipalities.

The tariffs are set by the Minister for Social Affairs as fixed prices in Danish Kroner.

The level and size of the tariff amounts were set initially on the basis of a survey regarding costs of services to municipalities, conducted by the Ministry of Social Affairs prior to the financial reform in 2001²⁸.

The tariffs are regulated every year (1st Jan) according to the price/salary index from the Ministry of Finance for the period two years before the tariffs apply and published by the Ministry of Social Affairs. The list of services subject to the financing model is long. Here are some examples of the tariffs (2004 level)³⁰:

- Employment of personal care assistants according to Social Services Act §77: DKK 307,800
- Stays in nursing home or protected housing according to Social Services Act § 140, 1, DKK 307,800
- Treatment of substance abusers whose stay has exceeded 120 days within the last 365 days, DKK 109,200

The tariffs can be converted to tariffs for shorter or longer time periods (months, weeks, days).

The Ministry of Social Affairs supervises and monitors the financing scheme based on mandatory reports from the municipalities and counties.

5.3 Calculation of actual costs under the basic tariff financing scheme

For the services which are subject to basic tariffs, it is always necessary to know the actual costs of the services, as the purchaser can never be charged more than the actual costs of providing the service. Also, another party than the one who has the provision responsibility is allowed to provide the service according to the law. E.g. a municipality may sell its services to another municipality, a county may provide a service for which the municipality is responsible. Therefore, actual costs are calculated and applied in the payment process for a wide range of long term care services.

According to the Social Services Act §131 a, 1, no. 6, the cost shall reflect the resource use attached to providing the service to the person/patient who receives it.

The parties involved, the county and the municipality, agree themselves how to calculate the actual costs. Cost calculation shall be done with a consideration for the administrative burden attached to doing so. The parties shall therefore not invent a complicated accounting system that allows them to calculate individual unit costs. In practice, this means that often average instead of individual costs, and budgeted costs may apply.

The Association of Municipalities and the Association of County Councils have recommended the following methods for cost calculation in their Agreement on Tariff Payments from 2001 for the services that are subject to basic tariff financing³³ :

For services involving stays at institutions, eg. nursing homes and mental nursing homes it is usually possible to identify a number of places, an expected occupancy rate and a budget. For these services, a standard cost for a standard service for a certain time period (“C”) can be calculated using the following approach

$$\begin{aligned} & \text{Gross operational costs for the institution} \\ & \quad \text{- deductions e.g. for rent, sale of services produced} \\ & \quad \quad \quad = A \\ & + \text{re-establishment supplement of 6.5\% of A} \\ & + \text{12\% of salary for public servant employees} \\ & \quad \text{- resident user payments for rent and services} \\ & \quad \quad \quad = B \text{ (basis for calculating costs)} \end{aligned}$$

$$C = (\text{average cost per day /person}) = B / \text{occupancy rate} / 365 \text{ days}$$

For services that differ considerably from the average service level, the price (cost) will be established at the time of referral either as a percentage of the average cost (e.g. 50, 75 or 150%) or as the average costs +/- the costs of supplementary services, or services not allocated to the person.

“Cost financed services” are services for which a number of places and an expected occupancy rate cannot be identified. Examples are care and nursing services provided at the patient’s home by a trained professional.

The cost of these services is established by summing up the expenses relating to the services allocated to the citizen. A suggestion is to base the costing on key ratios covering the entire

municipality. However, the cost components should be the same as for those relating to stays at institutions. They should include:

- Direct costs (salaries including pensions, insurance, other social costs)
- Indirect costs (expenses relating to courses, offices, administration and management)
- Expenses relating to rent and buildings.

The exact methods are to be agreed between the individual county and municipality involved in the payment situation. However, it is recommended that auditors are involved in the costing process to ensure acceptable methods for all parties.

As to direct costs, the two associations recommend that a standard average fee per hour per employee in DKK for the service is calculated using total direct salary costs for the personnel group divided by the number of full-time positions. Indirect costs relating to training, transport, office supplies and a percentage of the costs of administration and management should be summed up and divided by the number of full-time positions to get the average cost per employee. Costs of rent /capital shall be calculated as a cost per full-time employee but the exact methodology is not described in the agreement.

Furthermore, once the average costs per hour per employee is established, the cost per ATA hour (“ansigt-til-ansigt”), face-to-face with the patient/user shall be calculated to get the cost per hour allocated to the user. The municipality/county may use an exact recording of the time used by the employees or they may use national standards for the ATA-time (eg. For home nurses the ATA time is set to 50% of the time).

In case budgeted costs are used, the Association of Municipalities and the Association of County Councils do not recommend that the costs are regulated later according to actual costs. However, the risk of using budgeted costs should be borne by the party which has the possibility of influencing the budget /the situation.

Today most counties and municipalities have framework agreement regarding financing of services and methods used for costing, eg.³⁵.

6 Ancillary Services to Health Care (HC 4)

6.1 Introduction

Ancillary services, including laboratory tests, diagnostic imaging etc. to hospital services are described in Chapter 2 on the DRG system. Ancillary services provided as part of the Health Care Reimbursement Scheme are subject to the same system as out-patient care and are described in Chapter 3.

Therefore, this chapter only deals with patient transport and emergency rescue.

6.2 Patient transport and emergency rescue

6.2.1 Introduction

According to the Hospital Act and notices on pre-hospital treatment, the counties are responsible for providing sufficient patient transport and emergency rescue for the citizens. The counties are free to choose to provide the services themselves or purchase them from other providers^{1,41}. In the current situation, the counties purchase their ambulance services from one private provider only, Falcks Redningskorps (“Falck”). The municipal councils of Copenhagen and Frederiksberg purchase their services from the municipal fire brigades in their area.

Seated, non-acute patient transport eg. from hospital to the patient’s home is provided by a number of different companies including taxi companies and are financed by the counties and the patient themselves. Contracts, prices, and payment procedures in this area are subject to EU tendering.

This section will mainly describe the agreements regarding emergency transport and recumbent transport between the main provider, Falck and the counties as they cover more than 80% of the ambulance services (measured in the number of rides) and 98% of the geographical area of Denmark⁴¹.

6.3 Payment and financing systems – ambulance services

Patient transport and ambulance services are carried out under a wide use of contracting between the counties and different providers. Eg. Falck works under the Standard Agreement and several agreements with individual counties, and the municipal fire brigades work under local agreements with their respective counties.

6.3.1 The Standard Agreement

The Association of County Councils and Falck work under a contract denoted “The Standard Agreement” which forms the basis of Falck’s provision of ambulance services for the counties³⁷.

The current Standard Agreement was entered in 1995 and revised in 1998. New negotiations were planned in 2003 but according to a settlement in the Complaints Board for Tenders based on a EU settlement from Austria³⁹, the Danish public authorities are obliged to put ambulance services to tender.

Re-negotiations about the agreement with Falck have therefore been discontinued, and at the moment, the counties and the Association of County Councils work on the definition of the EU tender terms of reference.

At the same time, the counties consider the potential consequences of the structural reform to start in 2007, so the Standard Contract is still in force, but perhaps on a short term. Today, most counties have an agreement with Falck to use the Standard Agreement and a mutual term of notice of six months, so in all cases this agreement will rule for some time to come.

The Standard Agreement is a framework agreement and the individual county can choose between this agreement and individual agreement or a combination of both agreements.

If counties accept the Standard Agreement, Falck will assume both the ambulance preparedness, emergency ambulance services, and recumbent patient transport for the county. A county cannot use the agreement for one of the areas only. The argument according to the Association of County Councils is that it gives Falck an opportunity to obtain economies of scale in the utilisation of ambulances for several purposes³⁷.

The county sets individual targets according to the average response time, but Falck may plan and carry-out ambulance services as they find best. Different reporting systems ensure that the counties have a certain insight into Falck's activities and the possibility to comment, and modify the tasks.

The individual counties and Falck may enter supplementary agreements to the Standard Agreement. There are examples of agreements regarding doctor ambulances, and emergency vehicles.

6.3.1.1 The Payment Model of the Standard Agreement

The Standard Agreement contains two separate payment models. One for payment of ambulance preparedness and emergency transport and one for recumbent patient transport.

The model for emergency ambulance services and preparedness contains both a fixed price element and a adjustment element based on activity based financing.

The fixed price agreement consists of an annual basis payment fixed at the Standard Agreement Negotiations in 1994 and adjusted every year according to the development in activity and service level.

If the ambulance activity in the individual year (measured as a function of the total number of rides and use of man hours in the county) is different from the 1994 level in the individual county, the annual payment will be adjusted.. Equally, there is an adjustment of the basic payment if the actual response times obtained are different from the targets set in 1994 and subsequently 1999³⁷.

Payment for recumbent patient transport is released independently of the payment for ambulance preparedness and emergency transport. Payment for these services is activity-based on an index of person hours used and kilometres driven. Prices are regulated according to changes in prices of vehicle maintenance, fuel etc.

Despite the Standard Agreement the Danish market is characterised by many individual agreements and contracts.

Thus, there are no “national” or official prices covering the entire country and it may in theory be possible for a provider like Falck to obtain different prices from different counties for certain services, especially the special services that are not part of the standard agreement. In the Standard Agreement the actual prices may vary according to non-economic factors, such as a reduction of payment if response time targets are not obtained (see section above).

6.4 Costing ambulance services

It is difficult to be specific about the degree to which the prices of the standard agreement reflect actual costs of the services. The main provider is a private company whose business per se is based on profit earnings, so there is undoubtedly a difference in terms of profit between actual production costs and the prices obtained.

At negotiations, the parties may bring up production costs in their argumentation, i.e. general salary increases, level of personnel skills required, oil prices etc., but this is done on an ad hoc basis and not a specific requirement⁴⁰.

7 Analytical Section

7.1 Summary of Descriptive Sections

The four Danish health sectors described in the previous chapters are examples of four different ways of financing health services and of four different approaches to price setting and costing.

The table on the next page provides an overview of the approaches used:

The hospital sector comprises in-patient curative care (HC 1.1), day cases of curative care at hospitals (HC 1.2), rehabilitation at hospital (HC 2), some long-term medicine at hospitals, e.g. hospice care (HC 3.1) and ancillary services (HC 4), eg. laboratory services and diagnostic imaging. Historically, hospitals have been financed through global budgets negotiated every year with the county. These budgets have constituted a frame within which the hospitals (counties) could act relatively independently. Therefore, traditionally there has not been a need for costing the different services. However, initiatives such as the free choice of provider and an increasingly larger part of hospital financing becoming activity-based have resulted in a need for prices to pay for exchange of patients or extra activity and have led to the use of costs as a basis for price-setting in the hospital sector. Today prices are based on costs collected from an increasing number of hospitals. The costing methods applied is a mixture between step-down accounting as explained in chapter 2, and gross costing where the total account is divided by the number of patient in a top-down approach. Finally, micro costing studies, where the cost components are defined, resource use is quantified and valued in a bottom-up approach, are used for validation purposes.

The primary care sector: entails the services provided by general practitioners, specialists and paramedics which in the OECD classification of health sector are defined as out-patient services, home services (some parts) or rehabilitative services (some parts). This sector is subject to public health insurance and the counties act as a third party payer on behalf of the patients. Here, negotiated prices are used widely for all types of services; for GP a combination of capitation and fees for services (25% capitation, 75% fees for service) and for other specialists fees for services are used. The prices are usually combined with a ceiling for the activity (budget), so that if the budget is exceeded, it is likely that prices will be reduced in the subsequent negotiations, unless there are specific clinical or organisational reasons for the increased demand. Costs are not used.

Municipal services of rehabilitative care, are financed through the general municipal budget and costs are not used unless a case-specific quotation is required to cost /price add-on services to a stay in a long-term care institution.

Long-term care outside hospitals are subject to the basic tariff financing model described in Chapter 4. The assessment of costs is part of the scheme. The method applied is a variant of gross costing with some element of bottom-up costing.

Patient transport is subject to contracting and payment is released as a combination of a basic payment based on an up-to-date version of the 1994 level of core payment and an activity-based payment for number of person-hours and ambulance rides performed. Costs are not used in the negotiation of contract(s).

In summary, prices are used where there are private or independent providers (out-patient care /patient transport), third party payers or split financing responsibility (long term nursing care) or activity based financing (hospitals). Other parts of sector use (global) budgets as a payment mechanism. This is the case where the purchaser and the provider are the same (municipal rehabilitation/ some parts of hospital care).

Table 1. Framework for Descriptive Section

Sector (Functional Categories)		Cost Assessment			Price Setting				
		Used?	Units of resource usage	Source of resource usage	Source of monetary value	Unit of price/payment	Level of price setting/negotiation	Variability of prices depending on...	Updating
HC 1	Services of curative care	Y: Step-down acc./gross/ /microcosting	Dis-charge/bedday/unit of service	Real data/hospital info. syst.	Real data /annual account	Global budget ABF (price per DRG)	National /regional (county)	budget ceiling	Every year
	HC 1.1 In-patient curative care								
	HC 1.2 Day cases of curative care	Y: step-down acc.	Visit/unit of service	do	do	Global budget (price per DRG)	National	do	Every year
	HC 1.3 Out-patient care	N		-	-	Capitation /fee for service	National	Volume /relative payment per patient, turnover	Every 6 months
	HC 1.4 Curative home care	N		-	-	Fee for service	National		
HC 2	Services of rehabilitative care	Y/N		-	-	Budget	National/municipal		Every year
	HC 2.1 In-patient rehab care	Y/N		-	-	Budget	National/municipal		Every year
	HC 2.2 Day cases of rehab. care	Y/N		-	-	Budget	National/municipal		Every year
	HC.2.3 Out-patient rehabilitative care	Y/N		-	-	Budget	National/municipal		Every year
	HC 2.4 Rehab. home care	Y/N		-	-	Budget	National/municipal		Every year
HC 3	Services of long-term nursing care	Y		Re-al/estimated data	Real data	Budget /Basic tariff /actual costs	Municipal/county/national/municipal		Every year
	HC 3.1 In-patient long-term nursing care	Y/N: gross-costing	Cost per patient per time unit (eg. year, week, hour)	Re-al/estimated data/budget	Real data /annual account, historic cost level (for the basic tariffs)	Budget/Basic tariff /actual costs	Municipal/county/national/municipal		Every year
	HC 3.2. Day cases of long term nursing care	Y/N: gross-costing	Do		Do	Budget/Basic tariff /actual costs	Municipal/county/national/municipal		Do
	HC 3.3 Long term nursing home care	Y/N:gross-costing	Do		Do	Budget/Basic tariff /actual costs	Municipal/county/national/municipal		Do
HC 4	Ancillary services to health care								
	HC 4.1 Clinical laboratory	Y/N				Item			
	HC 4.2 Diagnostic imaging	Y/N				Item			
	HC 4.3 Patient transport	N				Basic payment + activity based		Contracts, activity	Not any more

7.2 Can we identify a clear conceptual separation between costs and prices in practice?

If the provider is a public institution, e.g. a hospital or a public nursing home, costs and costs assessment are applied in price setting and there is a conceptual separation between costs and prices in the form of different guidelines for costing, price catalogues etc. Exceptions to this are mental hospitals or municipal rehabilitative services where a separation cannot be established as the payment unit is either a top-down calculated price per bed day or a budget.

Where the providers are private companies, there is no access to (production) cost information, and seen from a societal perspective there is no conceptual separation between costs and prices. From the payer's perspective (the county), prices are equal to costs (as they represent a value for the county, which could have been used alternatively elsewhere).

7.3 To which extent do unit prices reflect unit costs and what role do volume play for this relation?

Again where the provider is a public institution, prices do to a certain extent reflect actual costs, depending on the accuracy by which costs in practice can be attached to a cost unit./component. The costs applied in hospital price setting are average costs for all hospitals, and it may be that due to differences in costing methods, data detail and reliability between hospitals or differences in treatment practices, the prices based on average hospital costs do not precisely reflect the local hospital unit cost.

However, it is the intention that prices should reflect costs and practical barriers to cost assessment may explain the situations where prices differ from costs. The actual costs applied under the basic tariff financing scheme are calculated according to the local situation /agreement and prices applied do indeed reflect actual costs.

Generally, volume influences the payment for hospital services, when the level of activity which releases payment on the margin is reached and again when the "ceiling" is reached.. The budget is based on a pre-negotiated level of activity and extra production above the agreed level releases the activity based payment described in chapter 2. In order to control expenses, most counties have furthermore imposed a "ceiling" on the amount of money that a hospital can be paid and activity above the ceiling shall be provided at no extra payment.

However, there is variation in the individual agreements between counties and hospitals so this pattern does not apply to all hospitals.

Within out-patient services, the issue of volume is important, as different mechanism to control the payment per patient, the size of the provider turnover etc. are widely applied in most agreements. In some cases, these mechanisms work as a purchaser discount for activity above a pre-agreed turnover level ("knækgrænser" , applicable for specialists), in other cases as a reduction of the payment per patient in case the average payment per patient has increased (eg. physiotherapy), and in other cases again as an introduction of a payment ceiling for those providers who has a relatively high (inexplicable) turnover (GPs, dentists etc).

Volume also influences the payment for patient transport as part of the payment is directly conditioned by the volume produced. However, it is not possible to assess the extent to which unit prices reflects unit costs for this sector.

7.4 Are there any subsidized service groups?

n.a.

7.5 Do discrepancies between costs and prices have implication on access or on delivery of appropriate care?

In theory, if the price is higher than the cost, providers have an incentive to perform the service as much as possible and vice versa if the cost is higher than the price.

The debate on this subject is not particularly vehement, so particular cases where discrepancies between costs and prices have had an implication on access or on delivery of appropriate care do not immediately pop into mind.

In the hospital sector, there may be patient groups within the case-mix system which are not homogeneous according to resource use, or groups whose cost weight does not sufficiently reflect the relative resource use. This may have implication on equality in access to care.

Furthermore, the introduction of new, expensive technology may make actual costs higher than the price based on (historical) average costs, and which again has an influence on patient access to this new treatment⁸.

Although it cannot be confirmed at the time of writing, there is an ongoing debate relating to the areas of care which are subject to cost-sharing. This is especially the case for dentist services where there is significant patient co-payment. Some people may not visit the dentist due to the fact that they have to pay for the services themselves. The same is the case for psychologist consultations for which most patients have to pay themselves and which are only for those who can afford to pay.

7.6 Do prices differ when these are done for the “internal market”?

In the hospital sector, foreign-county patients are settled at 100% of the DRG prices (free-choice patients) whereas the county’s own patients are only reimbursed at a lower rate, depending on local reimbursement model. So there are economic incentives to attract foreign-county patients. However, according to the agreement between the government and the counties about activity-based financing, it is a prerequisite that the county plans its activity based financing scheme in a way to avoid a cream skimming of foreign-county patients to the detriment of the county’s own patients.

It is difficult to say at this stage however, how these incentives and regulation against cream skimming works in practice.

For other areas, prices done for the internal market do not differ, as national prices and reimbursement scheme apply. Eg. out-patient services are subject to national prices, long-term

services are priced according to national prices and actual costs, and patient transport is subject to one contract covering most of the country.

7.7 The most important barriers to cost assessment in Denmark

There are two important barriers to cost assessment in Denmark.

In the situations, where the providers are private companies, such as providers under the public health insurance scheme (out-patient services) cost information is not brought forward in the negotiations, and according to the legislation on private companies, economic information from accounts is considered confidential.

The other barrier is lack of appropriate or sufficient systems to collect data on resource use eg. time. Although there are guidelines for cost collections for hospitals, some hospitals do not have the appropriate data collection systems to break down costs and to use the recommended allocation keys. They have to use simpler methods for costing.

Under the basic tariff scheme applied in long-term care, the aim is cost assessment to reach a cost per client /stay. However, this should only be done with a view to the time needed to do the assessment and to what can actually be carried out in practice.

Traditionally global budgets have been widely applied, and the need for costing is relatively new and has occurred with the introduction of payment transactions between providers/purchasers. Therefore, all over, the health authorities involved still work on improving and refining the costing methodologies applied and the process is now well underway.

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