

# AMGROS Estimating unit costs

Version 1.1

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## About this document

This document has been developed by Amgros with the purpose of ensuring that identical principles are followed in the estimation of unit costs in the cost analyses that applicants must submit to the Medicine Council as a part of the application process for new medicines and indications in the hospital sector.

These guidelines contain specific unit costs, methods to be used for calculation of unit costs and references to sources that should be used for estimation of unit costs.

The contents of the document should be considered as guidelines. Therefore, it is advised that the applicant use it accordingly when estimating unit costs. Amgros knows under certain circumstances it might be necessary to deviate from the guidelines. Should this be the case it must be clearly addressed and arguments supporting the costing must be presented. Generally, the costs of using the medicine and the comparator(s) must be estimated based on the summary of product characteristics (SPC), unless relevant arguments in favour of deviating from this are present.

The document is updated on a regular basis and it is therefore recommended to visit [www.amgros.dk](http://www.amgros.dk) regularly to stay up to date.

## Estimating unit costs

Generally, the applicant should use available tariffs or a micro-based approach when estimating costs (Frick 2009).

The estimation of unit costs should be as close to market prices as possible. This means that the estimation of unit costs is equivalent to the market value of the used resources.

Unit costs can be estimated in a number of ways. In some cases, it will be sufficient to use average tariffs and in other cases a more detailed approach must be used to clarify differences in the actual resource use.

## Medicine prices

Medicine prices must always be stated at the Pharmacy Purchase Price (PPP) level, exclusive of VAT ([www.medicinpriser.dk](http://www.medicinpriser.dk)).

## Tariff-based approach

The applicant can use tariffs such as DRG, DAGS, grey zone (for some procedures which can be performed in both an in- and outpatient setting), rehabilitation and psychiatry to estimate hospital costs. The DRG/DAGS tariffs express the average hospital operating expenses for each DRG/DAGS group. When using tariffs, and especially grey zone tariffs, the applicant must explain why the tariff is representative of the underlying resource use addressed in the analysis.

The Danish Health Data Authority [Sundhedsdatastyrelsen] annually publish DRG/DAGS tariffs for in- and outpatient procedures in the somatic and the psychiatric sector.

Table 1 below lists the different tariffs used by the Danish Health Data Authority. All tariffs (DRG, DAGS, grey zone, rehabilitation and psychiatry) can be found at <http://sundhedsdatastyrelsen.dk/da/afregning-og-finansiering/takster-drq>. All tariffs should be projected to present values.

Table 1: Tariffs

Rate	Regarding	Example
DRG	Somatic inpatient tariffs	0128 – Concussion DKK 8,094 (DRG 2017)
DAGS	Somatic outpatient tariffs	BG50C - Outpatient appointments w/record taken DKK 1,361 (DAGS 2017)
Grey zone	Inpatient and outpatient treatments	GR0205_F – Cornea transplant DKK 19,835 (Grey zone 2017)
Rehabilitation	Inpatient and outpatient rehabilitation at hospital	Rehabilitation group 1, inpatient DKK 914 (2017)
Psychiatry	Inpatient and outpatient tariffs	Inpatient days, DKK 3,628

### Micro-costing-based approach

Since the tariffs are based on the average resource use across hospitals for procedures, which might not be homogeneous (for example when the same tariff applies to various forms of medicine dispensing). In such case, it makes more sense not to use the tariffs and instead estimate the resource use using a micro-costing-based approach.

For a micro-costing-based approach, all individual components of the resource use and costs must be estimated. Individual components must be included and stated, for example use of staff resources, utensils and physical facilities.

### Staff

Salary data for each profession can be downloaded from The Municipal and Regional Salary Data Office ([www.fldnet.dk](http://www.fldnet.dk)) [Kommunernes og Regionernes Løndatakontor] for estimating the cost of staff time. The data covers all relevant professions employed by the regions and the municipalities.

When calculating the hourly rate from the monthly or annual salary the following assumptions should be used:

- 37 hours a week x 52 weeks = 1,924 hours a year.
- According to the Holiday Act, an employee is entitled to minimum 5 weeks' holiday or 25 days' holiday.
- In addition to this, staff in the regions and the municipalities are entitled to 5 days off with pay a year.
- Total holidays 30 days x 7.4 timer = 222 hours a year.
- $(1,924 \text{ hours} - 222 \text{ hours' holiday}) / 12 \text{ months} = 141.83 \text{ hours a month.}$

Multiply the calculated gross hourly rate by 2 in order to include overhead costs for hospital and department, time for non-patient tasks, breaks and other forms of absence besides holiday.

The applicant should use the gross salary of the past 12 months when calculating the staff-related hourly costs to avoid any time-related deviations. Table 2 below lists the hourly costs of selected professions calculated using the above method.

*Table 2: Overview of the hourly costs of selected professions employed by the regions*

<b>Profession</b>	<b>Gross monthly salary<sup>1</sup></b>	<b>Hourly rate</b>	<b>Hourly cost</b>
Nurses	38,442	271	542
Heads of department/professors [ledende overlæger/professorer]	89,395	630	1,260
Senior hospital physicians, salary acc. to salary grade (not heads) [overlæger, løntrinaflønnede (ikke ledende)]	90,949	641	1,282
Resident physicians [underordnede læger (reservelæger)]	54,144	382	764
Social and health assistants [social- og sundhedsassistenter]	36,121	255	510
Bioanalysts [bioanalytikere]	35,369	249	499
Occupational therapists [ergoterapeuter]	35,462	250	500
Nutritionists [ernæringsassistenter]	28,767	203	406
Physiotherapists [fysioterapeuter]	37,109	262	523
Midwives [jordemødre]	38,126	269	538
Hospital porters [sygehusportører]	31,784	224	448

Source: The Municipal and Regional Salary Data Office [Kommunernes og Regionernes Løndatakontor], <https://www.krl.dk/#/sirka/ovk>

<sup>1</sup>Average gross monthly salary 2017

### *Utensils*

Cost estimation of utensils should be based on the current market prices.

### *Physical facilities*

When estimating the cost of physical facilities all physical resources used due to the treatment must be included. This means both the physical facilities (for example examination rooms and beds), the costs of fixtures and other equipment (for example examination tables, infusion

stands and scanners). Operating expenses for electricity, heating and water must also be included.

## Non-hospital costs

Costs incurred in a non-hospital setting are comprised by primary sector expenses (general practice and specialist doctors) and health care costs covered by the municipalities, such as home care, rehabilitation and remedies.

## General practitioners and specialists with own clinics

Amgros proposes that costing of consultations with general practitioners and specialists are based on the latest available agreements between the Organization of General Practitioners [Praktiserende Lægers Organisation (PLO)] and the Regional Board of Salaries and Fees for General Practice [Regionernes Lønnings- og Takstnævn for almen praksis] and between the Danish Association of Medical Specialists [Foreningen af Speciallæger (FAS)] and the Regional Board of Salaries and Fees for Specialist Services [Regionernes Lønnings- og Takstnævn for speciallægeområdet].

Both agreements contain service-related tariffs that can be used as the basis for estimating the costs of a specific type of appointment.

Table 3 lists some of the services offered by general practitioners. The costing of general practitioner consultations should not include base fees.

*Table 3: Services and related tariffs effective from 1 April 2019 to 30 September 2019, agreement between PLO and RLTN*

### § 50 Grundydelse

Mandag–fredag kl. 08–16.

0101	Konsultation . . . . .	142,10
0102	Behandling af 2. sikrede i samme hjem (§ 66 stk. 1) . . . . .	142,10
0105	E-konsultation (herunder med kommunens plejepersonale) . . . . .	44,66
0120	Aftalt specifik forebyggelsesindsats <sup>1</sup> . . . . .	382,53
0121	Opsøgende hjemmebesøg (skrøbelige ældre, normalt over 75 år) <sup>2</sup> . . . . .	806,78
0122	Abortstøttesamtale . . . . .	403,37
0130	Kronikerhonorar, patienter med KOL, pr. måned . . . . .	154,16
0131	Kronikerhonorar, patienter med diabetes type 2, pr. måned . . . . .	172,17
0132	Kronikerhonorar, patienter med KOL og diabetes type 2, pr. måned . . . . .	216,61
0133	Afslutningsydelse, kronikerhonorar, pr. måned . . . . .	0,00
0201	Telefonkonsultation . . . . .	27,82
0411	Sygebesøg indtil 4 km (zone I) <sup>3</sup> . . . . .	381,40
0421	Sygebesøg fra påbegyndt 5 km indtil 8 km (zone II) <sup>3</sup> . . . . .	524,68
0431	Sygebesøg fra påbegyndt 9 km indtil 12 km (zone III) <sup>3</sup> . . . . .	599,95
0441	Sygebesøg fra påbegyndt 13 km indtil 16 km (zone IV) <sup>3</sup> . . . . .	678,27
0451	Sygebesøg fra påbegyndt 17 km indtil 20 km (zone V) <sup>3</sup> . . . . .	1048,35
0461	Sygebesøg fra påbegyndt 21 km til sygebesøgsstedet <sup>3</sup> . . . . .	1356,56
2301	For hver påbegyndt km ud over 21 km . . . . .	31,95
0491	Sygebesøg på ruten (uanset afvigelser fra ruten) . . . . .	381,40
2100	Tillæg til stedlig læge ved sygebesøg . . . . .	515,41
0410	Registrering af ikke udført sygebesøg. . . . .	0,00
1208	Tillæg til konsultationshonorar til 2. og følgende sikrede ved samme besøg på institution, § 66, stk. 2 (gælder ikke ved besøg hos flere beboere på plejehjem, her afregnes med 0491 for beboer nr. 2 og følgende) . . . . .	33,88

<sup>1</sup>) Når ydelsen leveres i hjemmet, afregnes tillige kørselsgodtgørelse og tidsforbrugstillæg. jf. note 2.

<sup>2</sup>) Der afregnes kørselsgodtgørelse efter § 61 (se side 2) og tidsforbrugstillæg svarende til § 95 (se side 2).

<sup>3</sup>) Kilometergrænsen gælder afstanden frem til sygebesøgsstedet.

Source: List of service tariffs, agreement on general practice fees between PLO and RLTN, 1 April 2019 to 30 September 2019, [https://www.laeger.dk/sites/default/files/honorartabel\\_2019\\_april\\_web.pdf](https://www.laeger.dk/sites/default/files/honorartabel_2019_april_web.pdf)

The table on the right, shows some of the tariffs agreed by FAS and RLTN. Estimating the cost of specialist consultations must be based on the effective tariffs dictated by the agreement.

The agreement between FAS and RLTN covers anaesthesiology, child and adolescent psychiatry, dermato-venerology, radiology, gynaecology and obstetrics, internal medicine, surgery, neurology, orthopaedic surgery, anatomical pathology, plastic surgery, psychiatry, paediatrics, rheumatology, ophthalmological assistance and otologist assistance. The agreement also contains the rates of standard laboratory examinations that are identical across specialisations.

Table 4: Sample of specialist fees, agreement between FAS and RLTN

## Takstkort 20C

### Neurologi

Overenskomstens specielle del, kapitel 9

Gældende fra:

1. april 2019

#### Grundhonorarer og honorarer

Sikringsgruppe 1 + 2 Note 1)

#### Konsultation mv. (§1, stk. 1):

Ydelse: Note 2)	Ydelsesnummer:	Honorar:
E-mail konsultation	0105	73,70
2. og senere e-mail konsultation samme dag	0106	73,70
1. konsultation - den indledende samtale	0110	831,41
2. konsultation - den forklarende/afsluttende samtale	0120	772,86
Udvidet 2. konsultation	0121	889,96
Senere konsultation	0130	509,07
Udvidet senere konsultation, planlagt	0131*	685,04
Telefonkonsultation	0201	169,69
Telefonisk rådgivning til praktiserende læge	0205	358,61
Tillæg for rekvirering af tolkebistand	2161*	115,68
Tillæg til konsultation med tolk	2261	331,77
Tillæg til døvetolk	2264	103,52

Source: Agreement on specialist treatment between FAS and RLTN, 2019,  
[https://www.laeger.dk/sites/default/files/takstkort\\_-\\_neurologi\\_pr\\_01.\\_april\\_2019\\_0.pdf](https://www.laeger.dk/sites/default/files/takstkort_-_neurologi_pr_01._april_2019_0.pdf)

## Costs incurred by municipalities

Relevant costs incurred by the municipalities are costs relating to for example home care, rehabilitation (general and specialised rehabilitation under the Health Care Act [Sundhedsloven] and maintaining rehabilitation under the Social Services Act [Serviceloven]) and expenses for physical remedies.

Costs and hourly rates are estimated as explained earlier.

Table 5 below lists the hourly costs for selected professions estimated using the above method.

Table 5: Overview of the hourly costs of selected professions employed by the municipalities

<b>Profession</b>	<b>Gross monthly salary<sup>1</sup></b>	<b>Hourly rate</b>	<b>Hourly cost</b>
Municipality physicians [kommunallæger]	79,732	562	1,124
Nursing home assistants [plejehjemsassistenter]	37,052	261	522
Social and healthcare auxiliary nurses [social- og sundhedsassistenter]	33,708	238	476
Social and healthcare assistants [social- og sundhedshjælpere]	32,350	228	456
Social and healthcare staff, untrained [social- og sundhedspersonale, ikke-udd.]	25,798	182	364
Trained auxiliary nurses [sygehjælpere]	35,479	250	500
Head occupational therapists [ledende ergoterapeuter]	49,245	347	694
Head physiotherapists [ledende fysioterapeuter]	49,575	350	700
Head health visitors [ledende sundhedsplejersker]	51,758	365	730
Head nurses [ledende sygeplejersker]	49,919	352	704
Occupational therapists, not heads [ikke ledende ergoterapeuter]	36,747	259	518
Occupational therapists, not heads [ikke ledende fysioterapeuter]	36,286	256	512
Health visitors, not heads [ikke ledende sundhedsplejersker]	39,073	275	550
Nurses, not heads [ikke ledende sygeplejersker]	37,973	268	536

Source: The Municipal and Regional Salary Data Office [Kommunernes og Regionernes Løndatakontor], <https://www.krl.dk/#/sirka/ovk>

<sup>1</sup>Average gross monthly salary 2017

## Costs incurred by patient and relatives

If no other estimates are available, the average hourly rate of an employee in Denmark after taxes can be used as an upper estimate. Based on SA001 as provided by Statistics Denmark, this is currently 180 DKK/hour<sup>1</sup>.

In addition to the actual time used, the analysis can also include expenses for transportation to and from the treatment. Transportation costs are estimated using the tax exempted mileage

<sup>1</sup> Statistics Denmark SA001: Total labour costs for corporations and organizations according to industry (DB07), salary components, employee group and gender

allowance determined by the state [befordringsgodtgørelse] of 3.53 DKK/km (2017). This rate is used irrespective of the means of transportation.

Unless otherwise specifically stated, Amgros will assume that for 2017 the distance travelled to a hospital was 14 km, equivalent to transportation costs to and from hospital treatment totalling about DKK 100.<sup>2</sup>

## Selected relevant literature

Amgros recommends the following literature for inspiration.

Frick KD. Micro-Costing Quantity Data Collection Methods. *Med Care*, 47(7 suppl.1), p 76-81, 2009.

*Sørensen Jan, Analysis of differences in resources used and costs of intravenous and subcutaneous administration of Herceptin for treatment of HER2 positive breast cancer (available in Danish: Analyse af forskelle i ressourceforbrug og omkostninger ved intravenøs og subkutan administration af Herceptin til behandling af HER2 positiv brystkræft), May 2014, Roche Danmark*

- Micro-based analysis of the difference in the use of resources and the costs of intravenous and subcutaneous administration of Herceptin.

*Jakobsen Marie, Rasmussen Susanne og Kjellberg Jakob, Cost differences when administering biological medicines - A case study in gastroenterology (available in Danish: Forskelle i omkostninger ved administrering af biologiske lægemidler - Et casestudie inden for gastroenterologien), 2015, KORA*

- Micro-based analysis of the differences in the costs resulting from the administration of biopharmaceuticals at hospitals in Denmark. This is a case study which calculates the differences in the administration costs of four gastrointestinal hospital departments.

*Department for medicine economics, What is the value of the advantage of oral treatment instead of injection treatment? (available in Norwegian: Avdeling for leggemiddeløkonomi, Hva er verdien av fordelene av oral behandling fremfor injeksjonsbehandling?) Literature study, October 2013, The Norwegian Medicines Agency*

- Literature study that reviews and costs the added value of using oral medicine instead of injection medicine. The study looks at oral medicines against multiple sclerosis in competition with injection treatment.

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<sup>2</sup> Local Government Denmark [KL]: Determination of distance to nearest hospital with emergency department - Before and after implementation of the new hospital structure (available in Danish: Kortlægning af afstand til nærmeste sygehus med akutmodtagelse - Før og efter implementering af den nye sygehusstruktur)



## Key figures

The below table lists several key figures. However, generally Amgros refers to the above guidelines to ensure that up-to-date figures are used.

Additional key figures will be added to this table as Amgros reviews applications to the Danish Medicine Council.

	<b>Key figure</b>	<b>Cost DKK</b>	<b>Source</b>
Hourly costs – regional staff [Timeomkostninger – regionalt personale]	Nurses	523	
	Heads of department/professors [ledende overlæger/professorer]	1,459	
	Senior hospital physicians, salary acc. to salary grade (not heads) [overlæger, løntrinaflønnede (ikke ledende)]	1,223	
	Resident physicians [underordnede læger (reservelæger)]	754	
	Social and health assistants [social- og sundhedsassistenter]	488	
	Bioanalysts [bioanalytikere]	486	
	Occupational therapists [ergoterapeuter]	488	
	Nutritionists [ernæringsassistenter]	397	
	Physiotherapists [fysioterapeuter]	492	
	Midwives [jordemødre]	508	krl.dk
	Laboratory technicians [laboranter]	426	
	Radiographers [radiografer]	490	
	Hospital porters [sygehusportører]	432	
Hourly costs – municipal staff [Timeomkostninger – kommunalt personale]	Municipality physicians [kommunallæger]	1,126	
	Nursing home assistants [plejehjemsassistenter]	505	
	Social and healthcare auxiliary nurses [social- og sundhedsassistenter]	461	
	Social and healthcare assistants [social- og sundhedshjælpere]	442	
	Social and healthcare staff, untrained [social- og sundhedspersonale, ikke-udd.]	355	
	Trained auxiliary nurses	487	

	[sygehjælpere]		
	Head occupational therapists [ledende ergoterapeuter]	669	
	Head physiotherapists [ledende fysioterapeuter]	674	
	Head health visitors [ledende sundhedsplejersker]	712	
	Head nurses [ledende sygeplejersker]	686	
	Occupational therapists, not heads [ikke ledende ergoterapeuter]	507	
	Occupational therapists, not heads [ikke ledende fysioterapeuter]	499	
	Health visitors, not heads [ikke ledende sundhedsplejersker]	536	
	Nurses, not heads [ikke ledende sygeplejersker]	522	
General practice services [Ydelser i almen praksis]	Appointments	137.83	
	Outreaching home visits (fragile, elderly people) [opsøgende hjemmebesøg (skrøbelige ældre)]	782.65	Daytime fees, general practice agreement [Honorartabel dagtid, overenskomst om almen praksis]
	Blood donation from blood vessel per shipment [blodtagning fra blodåre pr. forsendelse]	47.23	
	Home call within a 4 km radius [sygebesøg indtil 4 km]	212.50	
	Appointment with specialist in anaesthesiology [konsultation hos speciallæge i anæstesiologi]	597.33	
Appointment with specialist in internal medicine [konsultation hos speciallæge i intern medicin]	614.58		
Specialist services [ydelser hos speciallæge]	Appointment with specialist in gynaecology and obstetrics [konsultation hos speciallæge i gynækologi og obstetrik]	436.08	Agreement on specialist services [Overenskomst om speciallægehjælp]
	Appointment with specialist surgeon [konsultation hos speciallæge i kirurgi]	429.39	
	Appointment with specialist in neurology [konsultation hos speciallæge i neurologi]	797.33	
	Appointment with specialist in orthopaedic surgery [konsultation hos speciallæge i ortopædisk kirurgi]	424.80	

	Appointment with specialist in rheumatology [konsultation hos speciallæge i reumatologi]	626.57	
Costs payable by patient and relatives [Patient og pårørende omkostninger]	Time used for treatment, DKK/hour	182.72	Statistics Denmark
	Transportation costs per visit to hospital	100	Local Government Denmark and the Customs and Tax Administration [KL and SKAT]