
SCIENTIFIC EVALUATION OF PROJECTS
OF ALTERNATIVE FORMS OF CARE OR SUPPORT OF CARE FOR FRAIL
ELDERLY, IN ORDER TO ALLOW THEM TO MAINTAIN THEIR
AUTONOMY AND TO LIVE INDEPENDENTLY IN THEIR HOMES
“PROTOCOL 3”

COST PROJECTS REPORT

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1	The funding sources	7
1.1	The beneficiary contribution (all projects).....	8
1.2	Details of patient contribution (for the 27 projects asking one over 61)	9
1.2.1	For residential projects: night care, daycare (including those with case management).....	9
1.2.2	Other projects asking a beneficiary contribution	10
1.3	Other sources of funding from organizations	10
2	The overall descriptive results of costs	11
2.1	The type of human resources working in the P3 projects	11
2.1.1	Category of professions and functions	11
2.2	The cost of human resources.....	16
2.2.1	The total cost	16
2.3	The funding of sources of human resources.....	17
2.4	The equipment	18
3	Benchmarking of the resources used per project type.....	20
3.1	Psychological support	21
3.1.1	The quantity of the resources used per project	21
3.1.2	The costs analysis.....	24
3.1.3	Synthesis of the levels of resources used	27
3.1.4	The relation between the beneficiary profile and the cost per beneficiary.....	28
3.2	Occupational therapy.....	30
3.2.1	The quantity of the human resources used.....	30
3.2.2	The cost analysis	33
3.2.3	Synthesis of the levels of resources used	36
3.2.4	The relation between the beneficiary profile and the cost per beneficiary.....	37
3.3	Night care projects.....	38
3.3.1	The quantity of the human resources used.....	38
3.3.2	The costs analysis.....	40
3.3.3	Synthesis of the levels of resources used	45
3.3.4	The relation between the beneficiary profile and the cost per beneficiary.....	46
3.4	Case management projects providing occupational therapy and/or physiotherapy	51
3.4.1	The quantity of the human resources used.....	51
3.4.2	The costs analysis.....	53
3.4.3	Synthesis of the levels of resources used	56
3.4.4	The relation between the beneficiary profile and the cost per beneficiary.....	56
3.4.5	The relation between costs per beneficiary and the intervention.....	59
3.5	Case management projects providing occupational therapy and / or psychological support	61
3.5.1	The quantity of the human resources used.....	61
3.5.2	The costs analysis.....	62

3.5.3	Synthesis of the levels of resources used	65
3.5.4	The relation between the beneficiary profile and the cost per beneficiary.....	66
3.5.5	The relation between costs per beneficiary and the intervention.....	67
3.6	Case management projects providing residential support.....	69
3.6.1	The quantity of the human resources used.....	69
3.6.2	The costs analysis.....	70
3.6.3	Synthesis of the levels of resources used	73
3.6.4	The relation between the beneficiary profile and the cost per beneficiary.....	76
3.7	Case management projects solo	78
3.7.1	The quantity of the human resources used.....	78
3.7.2	The costs analysis.....	79
3.7.3	Synthesis of the levels of resources used	80
3.7.4	The relation between costs per beneficiary and the intervention.....	81
3.8	Daycare projects	81
3.8.1	The quantity of the human resources used.....	81
3.8.2	The costs analysis.....	84
3.8.3	Synthesis of the levels of resources used	86
3.8.4	The relation between the beneficiary profile and the cost per beneficiary.....	87
3.9	Synthesis of the cost of interventions.....	88
4	Appendix.....	91
4.1	Methodology.....	91
4.1.1	The data collection.....	91
4.1.2	Database elaboration and cleaning	92
4.1.3	The descriptive statistics of the profile of beneficiaries.....	103
4.1.4	Estimation of the total number of beneficiaries in 2012.....	103

The alternative healthcare projects, financed under Protocol 3, a federal and regional agreement, to support community-dwelling frail older people, may be financed through structural budgets after being evaluated during the pilot phase. This evaluation aims at ensuring that in the future, adequate budget will be used to fund innovative healthcare services. The approach of this study is to exhaustively assess the direct costs of the resources used per beneficiary (frail old person) for providing services¹: all resources used in the intervention are included in the cost estimation (Drummond MF et al. 2005), regardless the type of resources, health care and non-health care resources (see the methodology in appendix)². Based on the total costs estimated per project, the yearly cost per client is calculated using the total number of clients in 2012 (all beneficiaries who have spent at least one day in 2012 in projects). This type of assessment allows for determining the average cost for each type of intervention but is not suitable for estimating differences in individual costs (e.g. according to dependence levels) since no direct observation of the use of resources is individually performed per beneficiary.

The analysis also aims to discuss the adequacy of the level of resources used, mainly by performing a benchmarking of the costs within project types in order to compare the level of the resources used by similar projects providing same type of services.

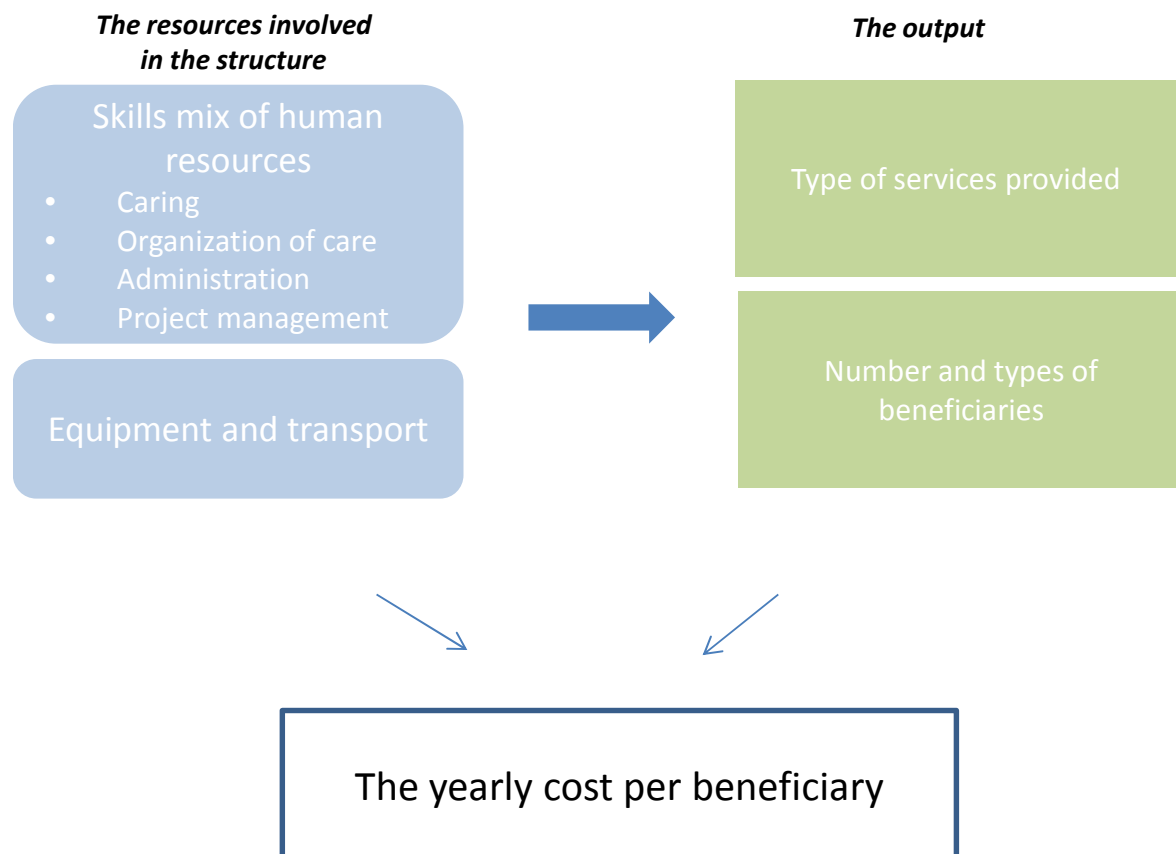
The research questions are structured in four topics:

1. The description of funding sources
 - *What are the different funding sources of P3?*
 - *What is the level of the contribution of beneficiaries?*
 - *What types of projects ask a contribution from beneficiaries?*
2. The description of the resources used in P3 projects at macro level: the overall costs of P3 projects
 - *What types of resources are used in P3 projects and their total costs?*
3. The benchmarking of the resources used per project type
 - *What are the different type and quantity of the resources used within types of projects?*
 - *What are the different level of resources and costs per beneficiaries per project, within types of projects?*
 - *Is there a relation between the patient profile and the total cost per beneficiary (at project level) within the project types?*

¹ Except for residential services and for daycare interventions, resources used for accommodation, catering and premises to hosting beneficiaries, are not included in the cost analysis for several reasons: the design of the data collection did not allow to identify the quantity of the resource used in P3 (standardized self-administered questionnaire). Indeed, these resources are mainly dedicated to other intervention than P3 projects.

² The impact of the projects on informal care is also assessed (see the integrated report).

The discussion of the yearly cost will be structured on different characteristics of projects, presented on the figure below :

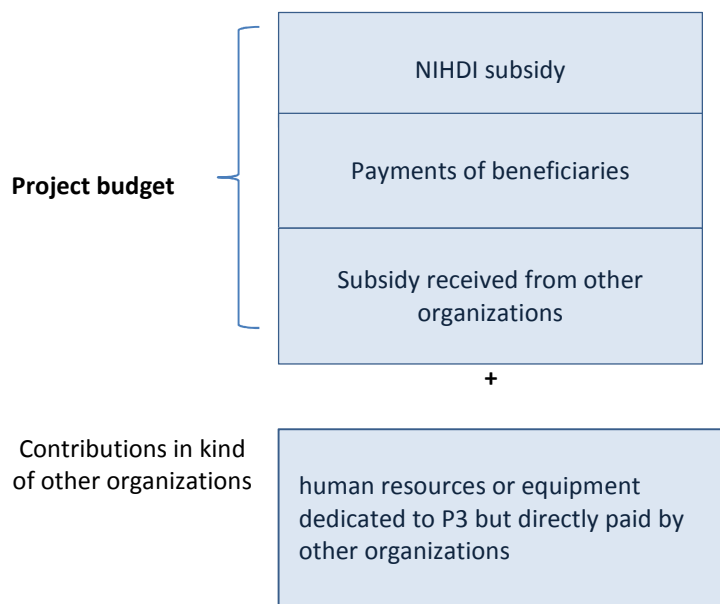


1 The funding sources

Three types of funding are possible in P3 projects:

- subsidies from:
 - NIHDI
 - public institutions (e.g. regions), the NIHDI allocation is the main part of this budget, but significant subsidies are also received from other stakeholders (see infra funding sources)
- payments of beneficiaries
- contributions in kind of organizations involved in P3 projects in human resources or equipment

Figure 1. The different type of funding sources



The subsidy and beneficiaries payments constitute the budget of projects, while the direct contributions of organizations are not included in this budget (contributions in kind).

This part presents the description of income sources of the project budget and the direct contributions of other organizations involved, only for human resources (not for equipment).

51% of the projects do not have any other funding than the NIHDI allocation. 49% of projects have various other incomes.

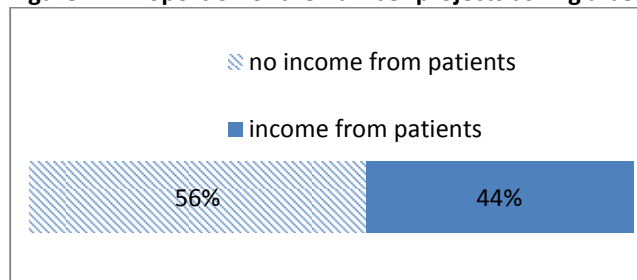
Two main types of income are distinguished:

1. The contributions from beneficiaries:
 - Lump sum: a beneficiary payment at a particular time (at entry in project, or a fee per year, per day or per night).
 - Service fees: are related to the services for the beneficiaries, calculated either per service provided either per hour of service.
2. Other funding: some projects also benefit from a financial participation received from various types of organizations (province, community, an organization of home care services, other non profit organizations or an individual gift...)

1.1 The beneficiary contribution (all projects)

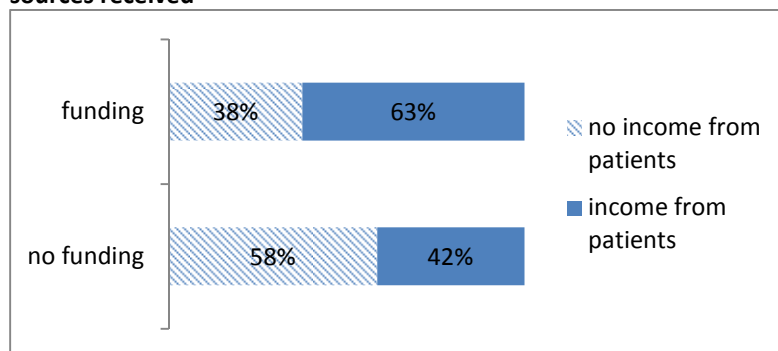
The majority of projects do not ask a beneficiary contribution (56%).

Figure 2. Proportion of the number projects asking a beneficiary contribution



The projects benefiting from additional source of funding to P3 (8 projects) also more often ask for a beneficiary contribution (63% vs 42% without allocations). 27 projects receive a beneficiary payment.

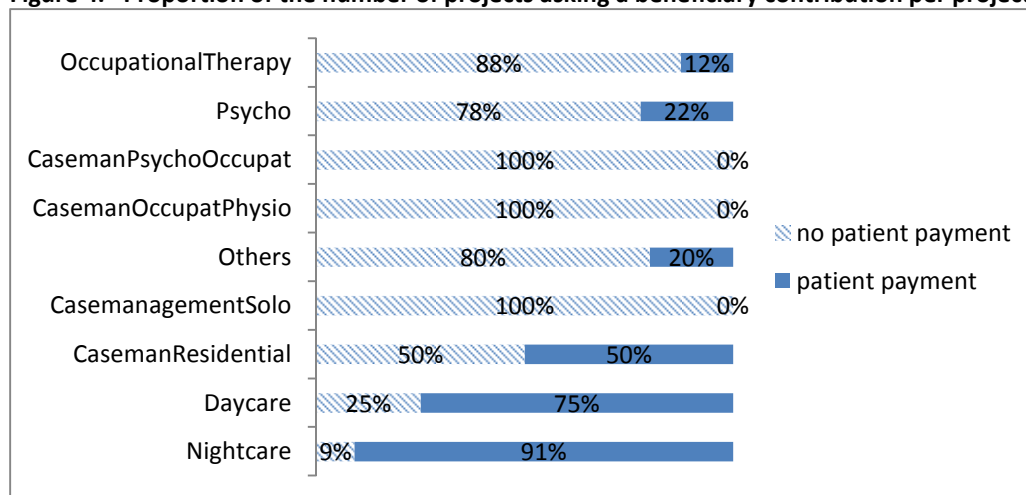
Figure 3. Proportion of the number of projects asking a beneficiary contribution according to other funding sources received



Night care and daycare are the types of project the most often asking a beneficiary payment (91% of the projects of nightcare and 75% for daycare). These contributions are mainly due to fund non health care services.

A few psychological support projects also ask a beneficiary payment (22%).

Figure 4. Proportion of the number of projects asking a beneficiary contribution per project type



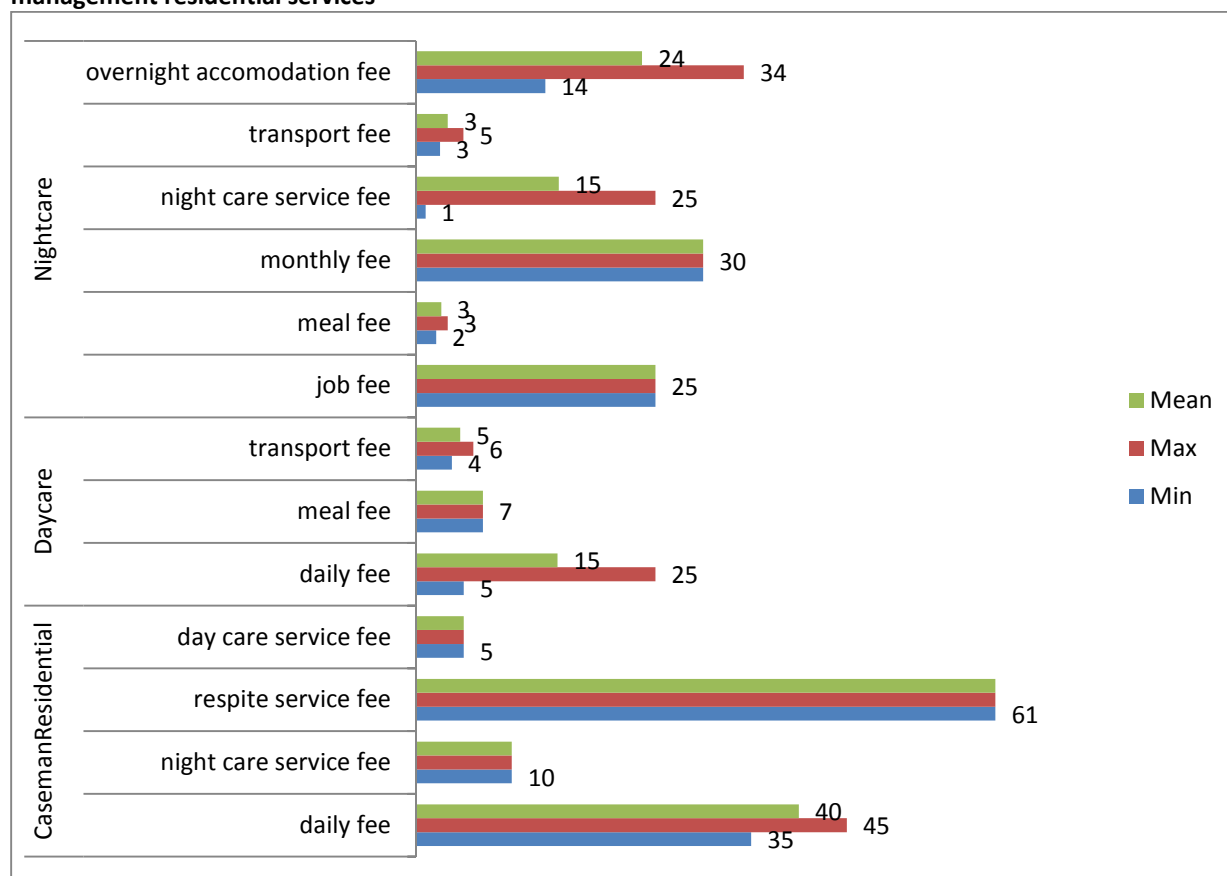
1.2 Details of patient contribution (for the 27 projects asking one over 61)

According to the project type, the beneficiary's contributions are dedicated to P3 related services or to other types of services. The amount and the type of payments differ a lot between projects and sometimes, the contributions are not comparable as the payment is allocated for a package of services: provider's fee (for non-health care services), intervention service fee, day care service fee.

1.2.1 For residential projects: night care, daycare (including those with case management)

- The **accommodation fee** is variable in night care and case management residential projects because the amount is not always limited to accommodation cost. For case management residential, all services are included (e.g. meals) while for night care, only accommodation fees are included.
- The **transportation fees** vary between projects or project types, between 3 and 6 euro.
- The **meals fees** vary a lot between the project types: around 3 euro for night care projects while in daycare, meals cost 7 euro in one project (other daycare projects indicate an overall price for the whole day, including other activities).
- One project proposes a costly **respite service** (61 euro per day)
- The **night care services** are the services provided at home during the night. 3 projects provide a service of **supervision for the whole night** which explains the beneficiary contribution of 25 euro per night.

Figure 5. Type and amount (in euro) of beneficiary contributions for night care, daycare and case management residential services



For the night care projects, night fee can be detailed according to the 3 sub types of night care projects: the total amount per night includes a night care services fee, meals, transportation, and an accommodation fee (paid by the beneficiaries). There are different levels of beneficiary contributions in night hostels. 37 euro represents a costly contribution for night hostel, comparing to the mean beneficiary daily cost of nursing home. In Belgium, the mean price per day by FOP is 42.5 Euros per day in 2012 (SPF Economie, P.M.E., Classes Moyennes et Energie).

Table 1. Night fee per sub type of night care projects

Total night fee	
37	Night hostel (transportation fees not included)
24	
16	
8	night care at home for several beneficiaries
1	
25	Night care at home over the whole night

1.2.2 Other projects asking a beneficiary contribution

Only a few psychological support and occupational therapy projects ask a beneficiary payment: in one occupational project, an administrative fee is asked at the entrance in the project (5 euros) and 5 euro for a worker if necessary to do some handywork (amount estimated per month for the service). 3 psychological support projects (of a total of 8 projects) ask a beneficiary payment: one project, a daily fee of 17 euro, another one, a service fee of 1 euro and the last one 15 euro of service fee.

There may be important financial barrier for accessing the P3 projects when projects ask a beneficiary contribution. For the night care, day care and residential projects, the beneficiary payment is mostly due for non-health services (accommodation, catering, transportation) while for the psychological projects the payment is for the P3 intervention itself.

1.3 Other sources of funding from organizations

8 projects benefit from direct allocation of other organization:

- 5 projects receive a funding in case of deficit. For 3 of them, the organization was mentioned: a nursing home, home care services and OCMW-CPAS, the other project did not mention the organization.
- The 3 other projects receive an allocation from the community (mainly Flemish).

- **51% of the projects only benefit from the NIHDI allocation**
- **Projects of daycare, night care and case management residential projects often ask a contribution from beneficiaries for non health care provisions.**
- **For psychological projects, 3 over 8 projects ask a payment to beneficiaries**
- **The accessibility of the P3 services can be an issue regarding either the price for non health services or for P3 interventions (occupational therapy and psychological support).**

2 The overall descriptive results of costs

2.1 The type of human resources working in the P3 projects

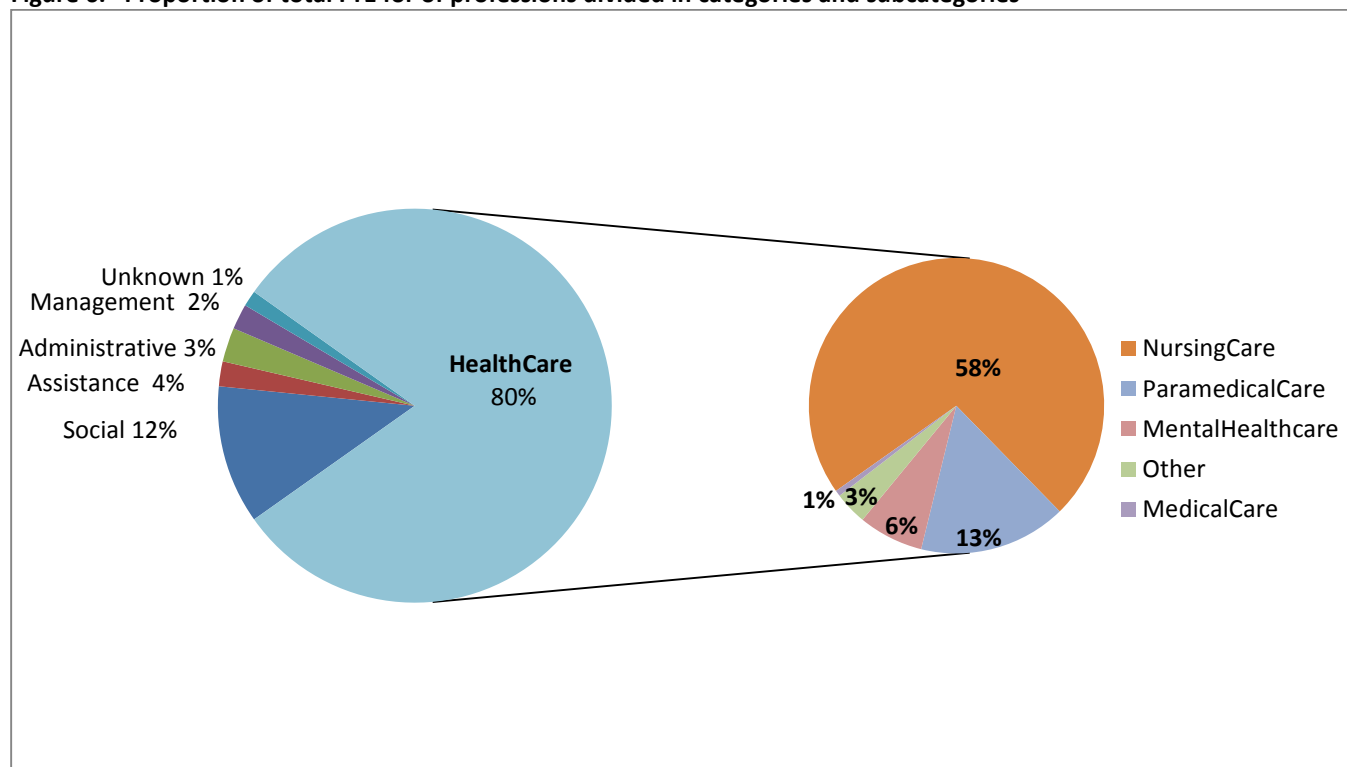
2.1.1 Category of professions and functions

The categories of profession

Professions have been grouped into 4 categories and another 5 subcategories for health care professions, defined by using the profession criteria.

- Healthcare category containing professions of healthcare sector (reimbursed or not)
 - Nursing Care: bachelor in nursing , hospital nurse, nursing assistant
 - Paramedical Care: physiotherapist, occupational therapist, speech therapist, dietician, orthopedist
 - Mental Health Care: psychologist, psychiatrist, psychology undergraduate
 - Medical Care: general physician, rehabilitation physician
 - Other Health Care professions: educator, family sciences undergraduate,...
- Social category: mainly social workers
- Administrative: mainly secretaries and accountants
- Management categories containing any profession involved in project management (e.g. director)
- Assistance containing helping professions: home helper, cleaners, drivers...

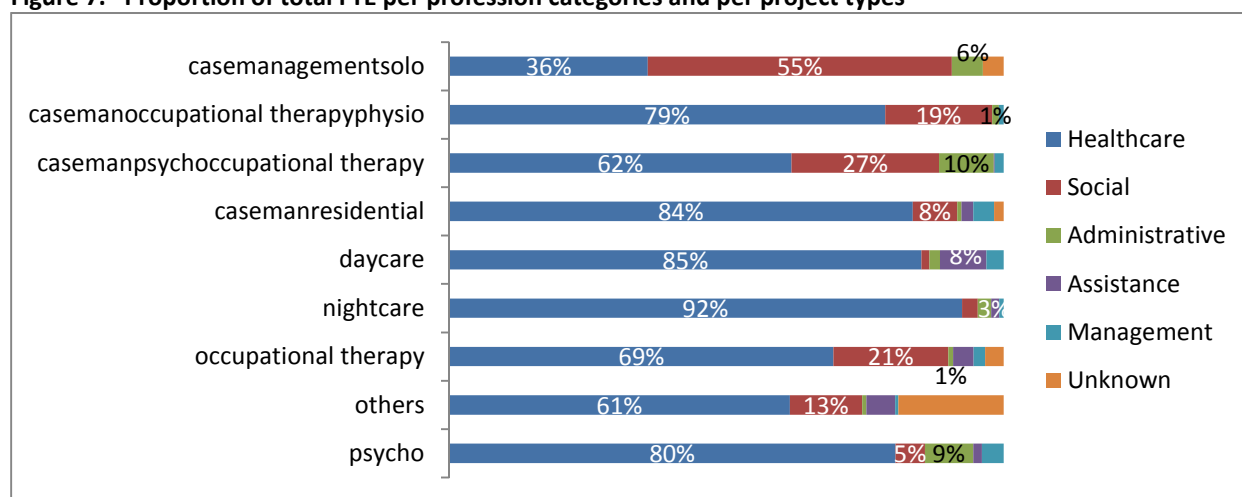
Healthcare professions represent 80% of the total FTE, corresponding to a total of 237 FTE. The social professions (mainly social workers) are the second most common professions in the project with a representation of 12% of the total FTE. 171 FTE or 58% of the health care professions are represented by nursing care professions, with the nursing assistant being the most common profession with a total of 112 FTE or 38% of total FTE. 13% of the health care professionals exercise a paramedical profession corresponding to a total of 39 FTE.

Figure 6. Proportion of total FTE for of professions divided in categories and subcategories


Per project type, the overall distribution of the profession categories does not differ a lot. Night care projects have the highest proportion of health care profession with 92% of the total FTE.

Occupational therapy and case management projects (except for case management and residential services) proportionally employ more social professions than other project types.

Administrative professions are proportionally more represented in projects of case management with psychology and occupational therapy (10% of total FTE) and projects of psychological support, than in other project types.

Figure 7. Proportion of total FTE per profession categories and per project types


The functions of professionals working in the project

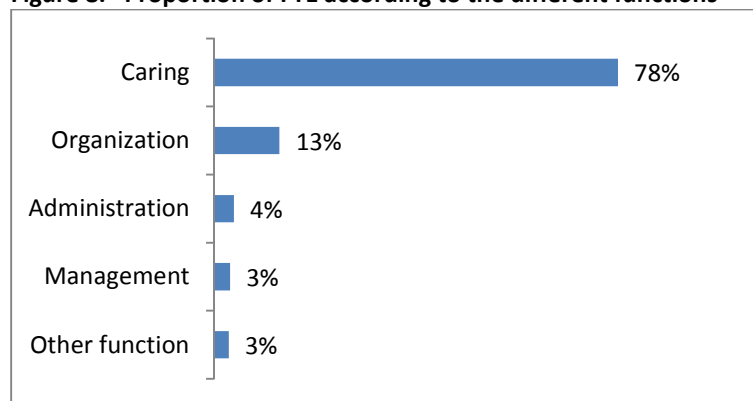
Professionals may exercise one or more different functions in the project. 5 different functions can be distinguished according to the type of activities usually realised:

Function categories are defined according to the types of task performed by professionals.

- Caring refers to any direct services provided to beneficiaries, healthcare, also including few non health care services (mostly handiwork).
- Organization refers to any activity related to the beneficiary level of services organization
- Management is related to activities of project management
- Administration is related to administrative tasks (e.g. accountancy)

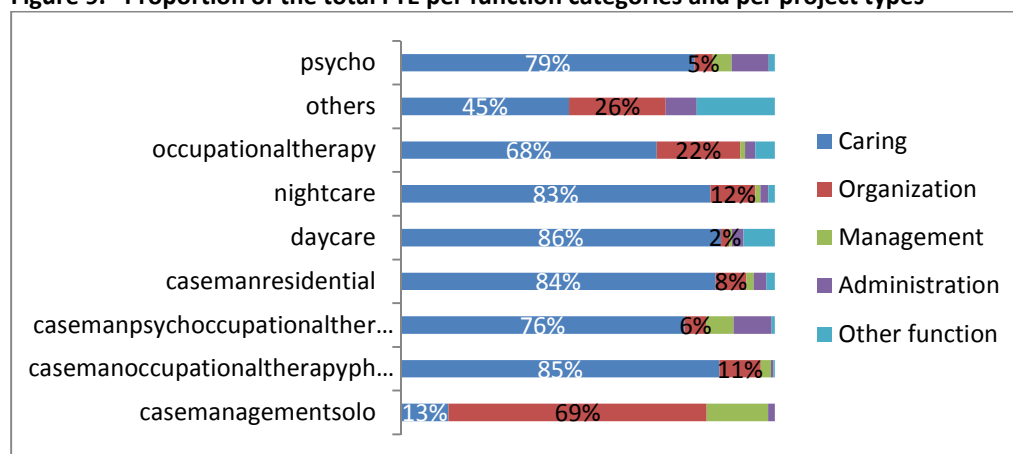
78% of the total FTE exercises a caring function. 13% has an organizing function. Administration and management represent 4% of the total FTE.

Figure 8. Proportion of FTE according to the different functions



Function categories differ a lot per project type. Day care, night care and case management residential, case management and occupational therapy and physiotherapy are the project types with the most of FTE attributed to caring functions (more than 86% of FTE). Case management solo has reversely most of the FTE dedicated to organisation activities with 69% of the total FTE. Occupational therapy projects have a low proportion of caring professionals (68%) compared to other types of projects. 22% of the total FTE are dedicated to the organization tasks of the services, with other possible tasks (without any caring activities), e.g. administrative or management.

Figure 9. Proportion of the total FTE per function categories and per project types *



**According to the total FTE in the particular project type, this is not the mean proportion per project type*

Bachelor in nursing, social assistant, occupational therapist, nursing assistant and psychologist are the 6 most common professions in the projects in terms of FTE, representing the majority of professions with 83% of the total FTE.

Table 2. Total FTE per profession

	% FTE	Total FTE
Nursing assistant	38%	112
Bachelor in nursing (A1)	11%	33
Social Assistant	10%	30
Occupational Therapist	9%	27
Hospital nurse (A2)	9%	26
Psychologist	6%	16

For the caring function, nursing assistant is the profession the most used for daycare, night care and case management residential projects.

Table 3. Professions with the function of caring

casemanagementsolo	% FTE
SocialGraduate	58%
Bachelor in nursing (A1)	27%
Hospital nurse(A2)	14%
casemanoccupationaltherapyphysio	
Bachelor in nursing (A1)	30%
Hospital nurse(A2)	22%
Occupational therapist	21%
casemanpsychoccupationaltherapy	
Psychologist	33%
SocialAssistant	28%
Occupational therapist	19%
casemanresidential	
Nursing assistant	60%
Hospital nurse(A2)	13%
Occupational therapist	8%
Daycare	
Nursing assistant	30%
Occupational therapist	23%
Hospital nurse(A2)	15%
Nightcare	
Nursing assistant	88%
Hospital nurse(A2)	8%
occupationaltherapy	
Occupational therapist	69%
Public healthcare undergraduate	11%
Bachelor in nursing (A1)	8%
Others	
Nursing assistant	22%
Educator	22%
Pharmacist	20%
Psycho	
Psychologist	51%

The costs of P3 projects in 2012

Physiotherapist	16%
Rehabilitation sciences bachelor	8%

** Only the 3 most important professions in term of FTE are cited (not always 100%)*

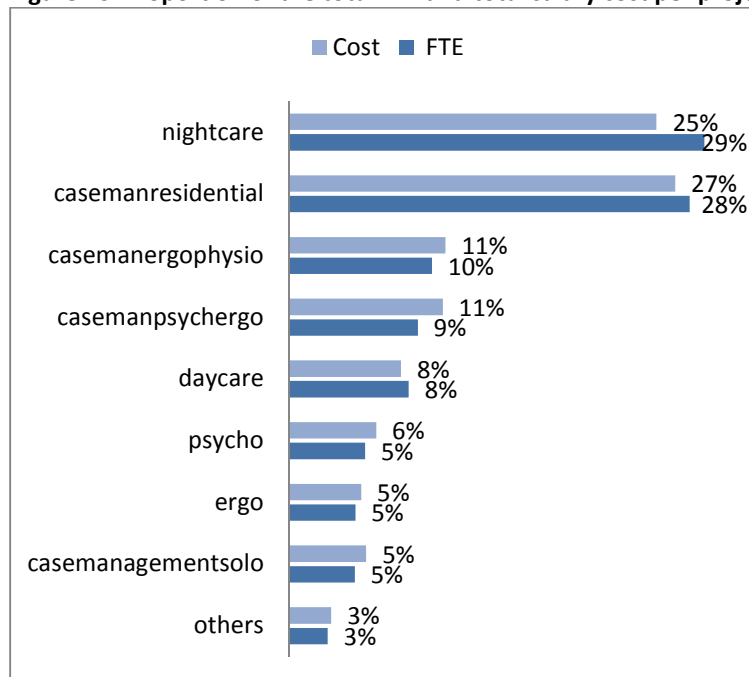
2.2 The cost of human resources

2.2.1 The total cost

The total project salary cost is 14 558 434 euros. The mean salary is 49 347 euro for (1 FTE) (see in appendix the median salary of all professions used).

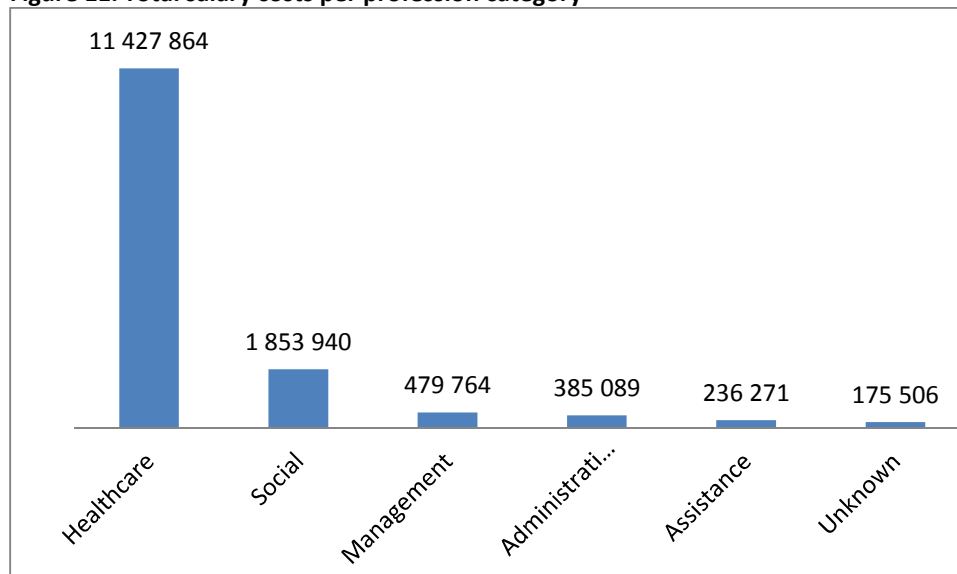
The most important project types are night care and case management residential projects representing the majority of the employers (57% of the total FTE).

Figure 10. Proportion of the total FTE and total salary cost per project type



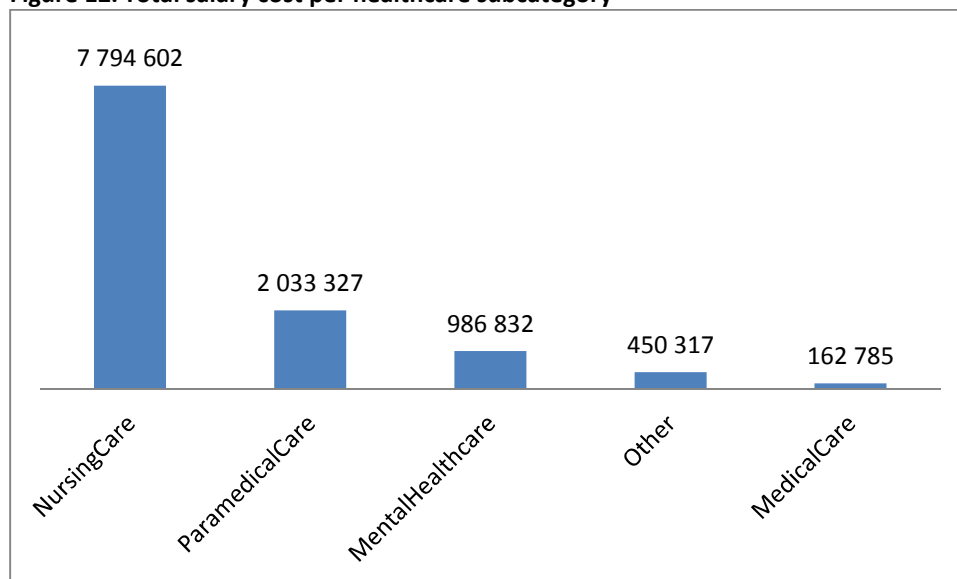
The healthcare professions represents 78% of the total cost of the human resources with a total of 11 427 864 euro.

Figure 11. Total salary costs per profession category



Nursing care professions represent the majority of the total salary cost with 7 794 602 euro (53% of the total human resources costs of P3 projects).

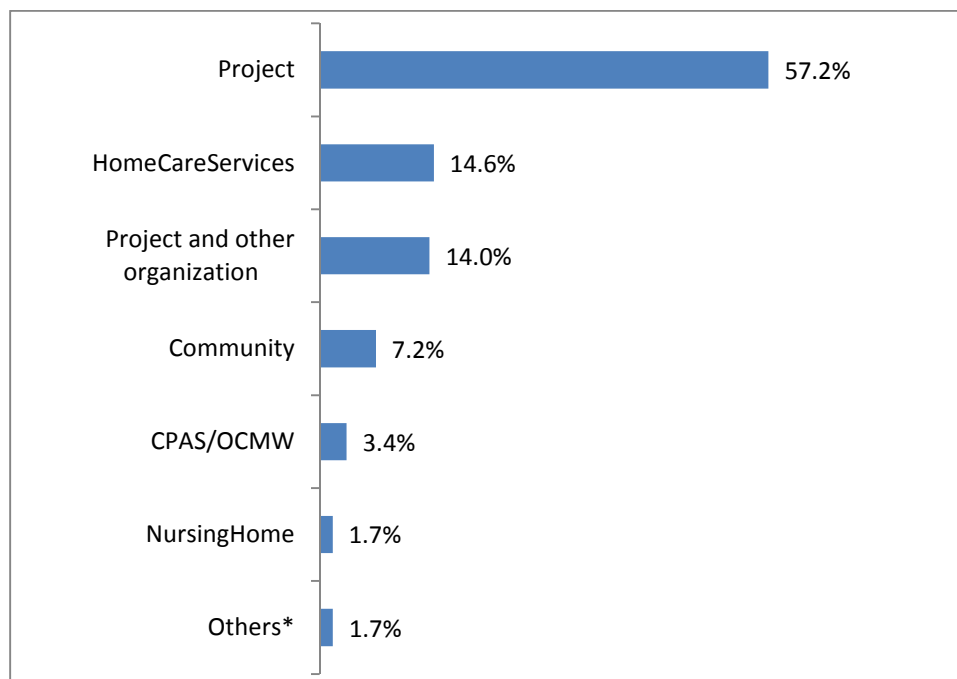
Figure 12. Total salary cost per healthcare subcategory



2.3 The funding of sources of human resources

Several sources of funding are possible, but the project budget (see [Figure 1](#)) remains the main funding source (57% of the total salary cost). Home care services organizations are the second most important source of funding with 14,6%. For a same professional, a combination between project and other organization budget is also possible, representing 14% of the total costs (often project and nursing home budget or project and home care services organization, see appendix).

Figure 13. Proportion of the total salary costs per funding source



*Others possibilities of funding sources are : Generation Pact, mutual health insurance, maribel, nursing home and client, non profit organization, mental health center, client

2.4 The equipment

The total costs of equipment represent only 3% of the total cost of FTE (but not representative for residential types of project).

The office supplies cost represents 50% of the total costs of equipment (without including the transport equipment).

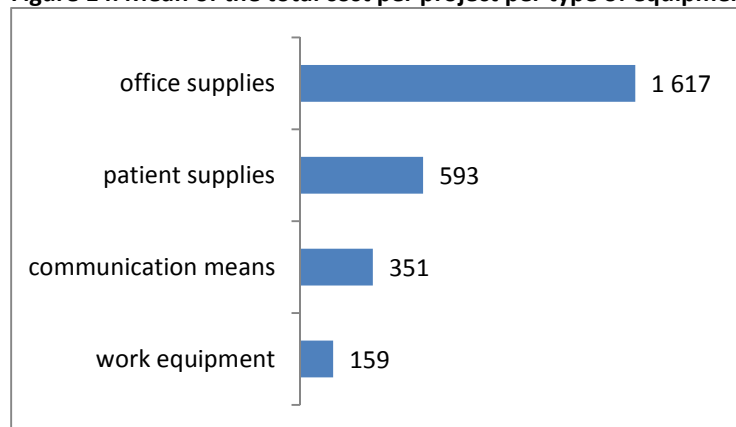
Table 4. Total cost equipment* per category (in euro)

work equipment	13 541
communication means	25 955
beneficiary supplies	39 737
office supplies	368 653
Total	447 886

**See in appendix the classification of the equipment*

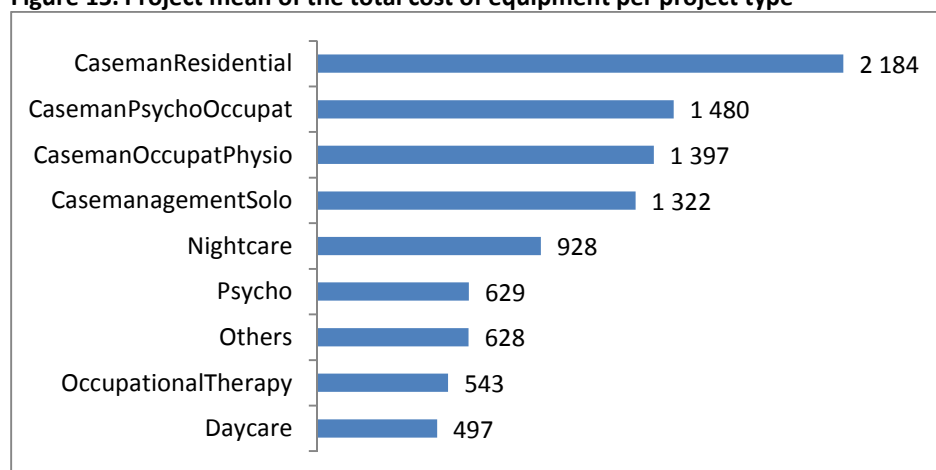
For 2012, the mean per project (all project types) is 1 617 euro for the office supplies cost, 593 euro for the beneficiary supplies costs, 351 euro for the cost of communication means and 159 euro for the cost of the work equipment (only equipment used by professionals).

Figure 14. Mean of the total cost per project per type of equipment



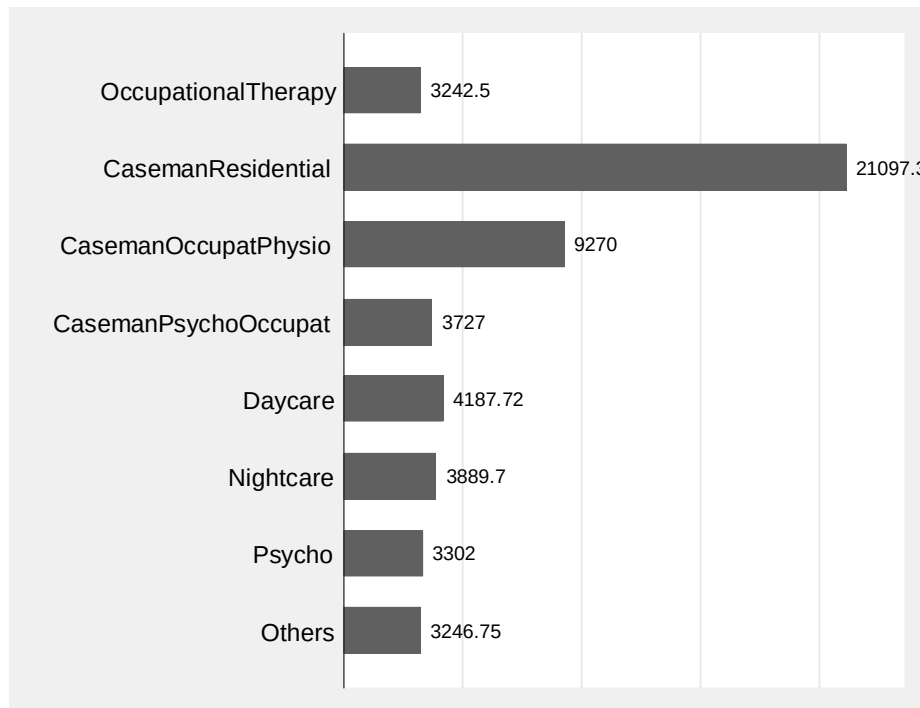
The equipment mainly varies according to 2 parameters, the professionals for all equipment directly used by the professional and the number of beneficiaries.

Figure 15. Project mean of the total cost of equipment per project type*



**For night care, daycare and case management residential, the equipment for accommodation or catering is not included.*

Figure 16. Median of the total project cost of transportation
(projects without any transportation costs are not included in the calculation)



- The most important types of projects according to the quantity of human resources are night care and case management residential projects, representing 57% of the total FTE.
- Health care professions represents 78 % of the total cost of human resources

3 Benchmarking of the resources used per project type

The aim of the benchmarking is to compare the human resources and the equipment costs per project within a category of projects. The cost is estimated over 1 year, 2012, which approximately corresponds to 2.5 years after the start of the project.

The ultimate goal is to propose an interval of the total cost per beneficiary and per year that is related to the intervention type. The main research question can be divided into two parts:

- *What are the different types and quantities of the resources used within the types of projects?*

The first part consists of a discussion of the interval of the cost per beneficiary per type of project (or subtype), according to the structure of costs (human resources and equipment). Important discrepancies between the quantities of resources used within project categories are analyzed, in particular outliers projects with extreme costs level per beneficiary.

The second part deals with the analysis of the costs and the possible factors explaining the different levels of resources use.

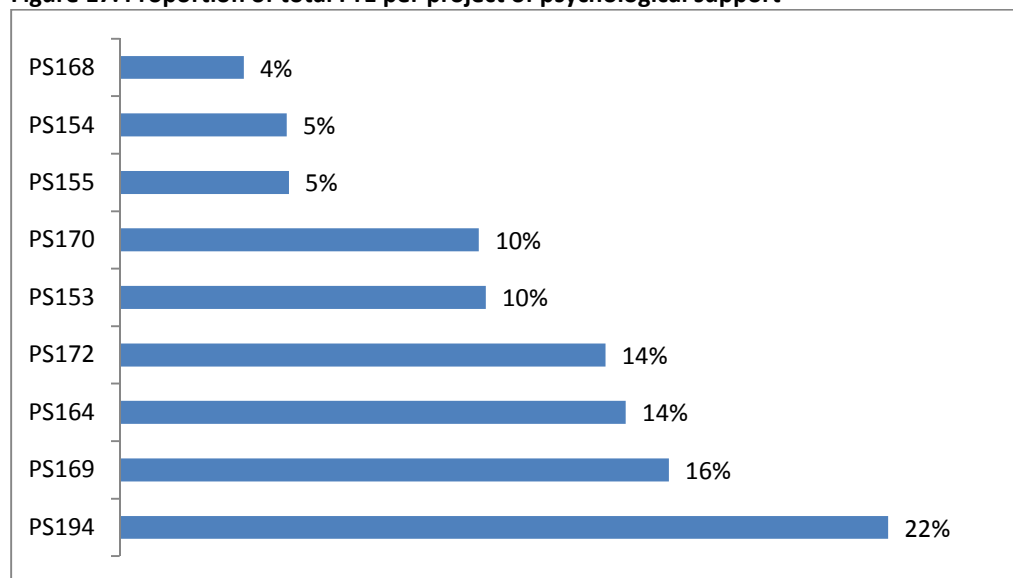
- *Are there any important discrepancies of the total cost per beneficiary according to their profile?*

3.1 Psychological support

3.1.1 The quantity of the resources used per project

The total number FTE per project varies between 0.55 FTE and 3.4 and the relative proportional of total FTE employed shows there are different size of psychological support projects in term of FTE (between 4% to 24%).

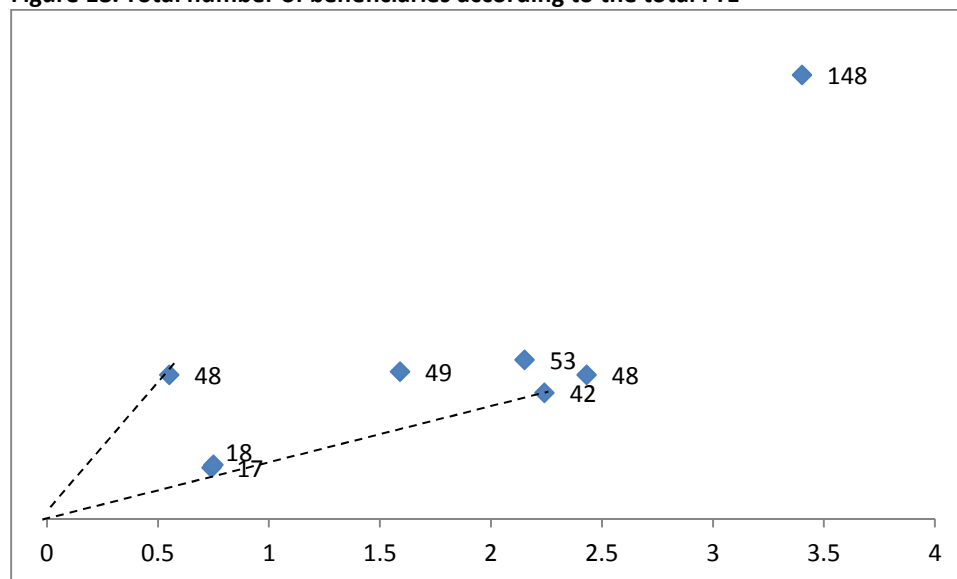
Figure 17. Proportion of total FTE per project of psychological support



Question: do bigger projects in term of FTE have more beneficiaries?

There is no clear link between the number of beneficiaries and the total FTE employed in the projects:

- 3 projects between 0.5 and 1 FTE with significantly different numbers of beneficiaries in 2012 (17 beneficiaries for PS154, 18 for PS155 and 48 for PS168).
- 1 projects with 1.59 FTE for 49 beneficiaries (PS170).
- Only the group of 3 projects around 15% of the total FTE, between 2 and 2.5 FTE have same number of beneficiaries.

Figure 18. Total number of beneficiaries according to the total FTE


The number of beneficiaries per FTE varies between 19 to 87 for the projects of psychological support (4.5 times difference between the 2 projects at the extrem). The project PS168 is an outlier compared to the other projects with 87 beneficiaries.

Table 5. Total FTE and beneficiaries in 2012

	total FTE	Total beneficiaries	Beneficiaries/FTE
PS164	2.24	42	19
PS169	2.43	48	20
PS154	0.74	17	23
PS155	0.75	18	24
PS172	2.15	53	25
PS170	1.59	49	31
PS194	3.4	148	44
PS168	0.55	48	87

Question: which type of functions do we find in the projects of psychological support and in what proportion?

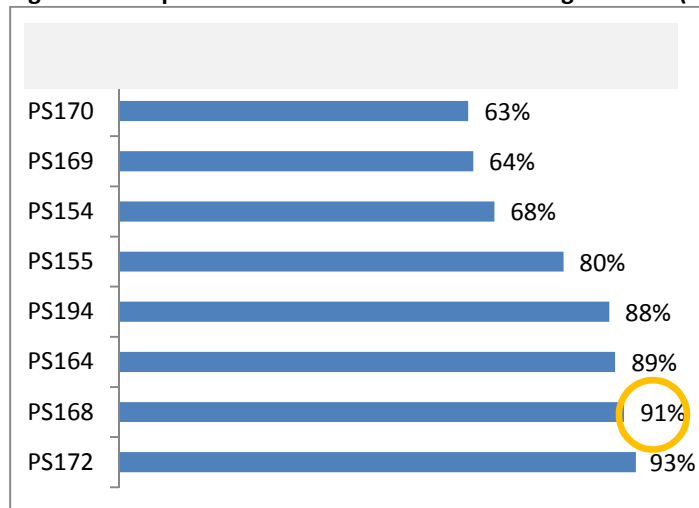
The distribution of the FTE according to the different types of functions gives a rough overview of the different organizational modalities. Nevertheless, the important discrepancies between projects may reflect important differences in the organizational modalities (the different functions have been summarized into 4 categories: caring, organization, administrative, project management, see part [2.1.1](#)).

In the figure below, the FTE proportion for caring is presented per project. There are two groups of projects, one group with a level of caring FTE around 60% of the total FTE and a second group with a higher level of caring FTE around 80% of the total FTE and more. The risk of a low level of caring FTE proportion is to have a high cost per beneficiary if the total number of beneficiaries is low. Other functions (administrative, organization and management) can be useful when the project reaches a certain size in terms of the number of beneficiaries.

The project outlier according to the number of beneficiaries per FTE, PS168 (with 87 beneficiaries per FTE), has a high proportion of FTE dedicated to caring with 91%.

There are two groups of projects with different proportions of the total FTE dedicated to the caring function: one group with about 60% and another group with more than 80%.

Figure 19. Proportion of the total FTE for the caring function (caring with or without any other function)

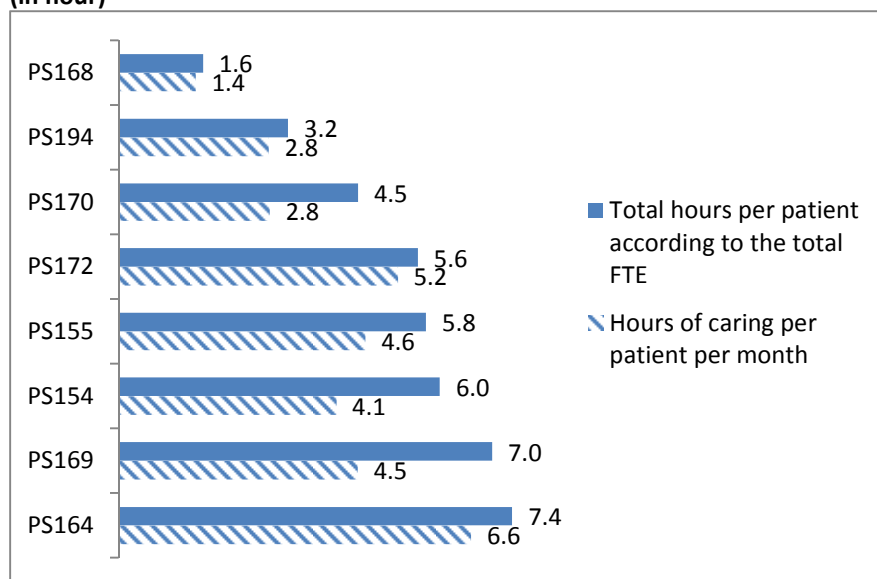


When we look more in detail into the total FTE dedicated to the caring function, important differences in the number of hours for the FTE per beneficiary subsist:

- One project with a high number of beneficiaries per FTE (PS168) has only 1.4 hour per month.
- There are two projects with the same number of hours of FTE with the caring function (2.8).
- 3 projects with about 4 hours per month per beneficiary
- 3 projects above 5 hours

The order of the projects according the quantity of the resources used does not change when only the caring function is considered.

Figure 20. Total time available per month* per beneficiary for the professions with the caring function (in hour)



*Total monthly time in hour (221 working days per year for an average per day of 7.5 hours)

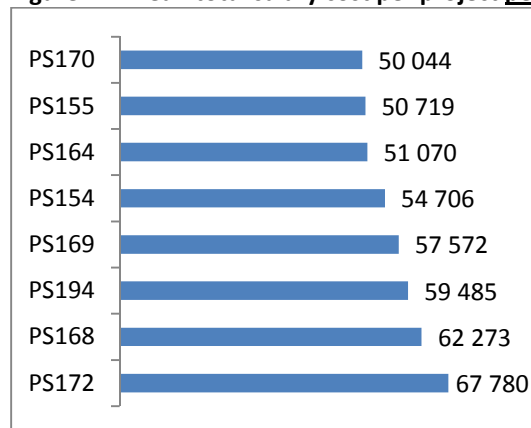
Almost all projects employ a psychologist. 5 projects employ other professionals: a hospital nurse, a rehabilitation science bachelor, a social worker, educational sciences graduate, gerontology graduate.

3.1.2 The costs analysis

The cost of human resources

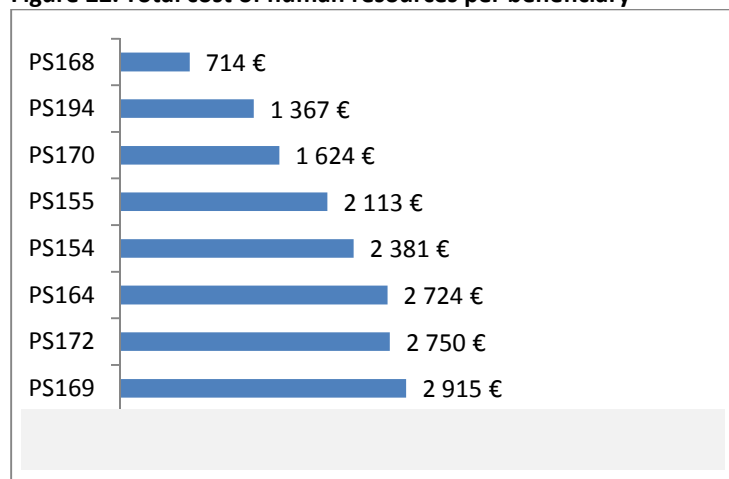
The mean total cost for one FTE differs between projects. The highest mean is 27% more costly than the lowest mean (67 780 vs 49 227 euro).

Figure 21. Mean total salary cost per project per FTE



The total human resources cost per beneficiary greatly differs from projects. The range varies from 714 euro up to 2 915 euro. The highest cost per beneficiary is almost 4 times more costly than the lowest cost (2 915 euro versus 714 euro in 2012). The median is 2113 euro per beneficiary for 2012.

Figure 22. Total cost of human resources per beneficiary



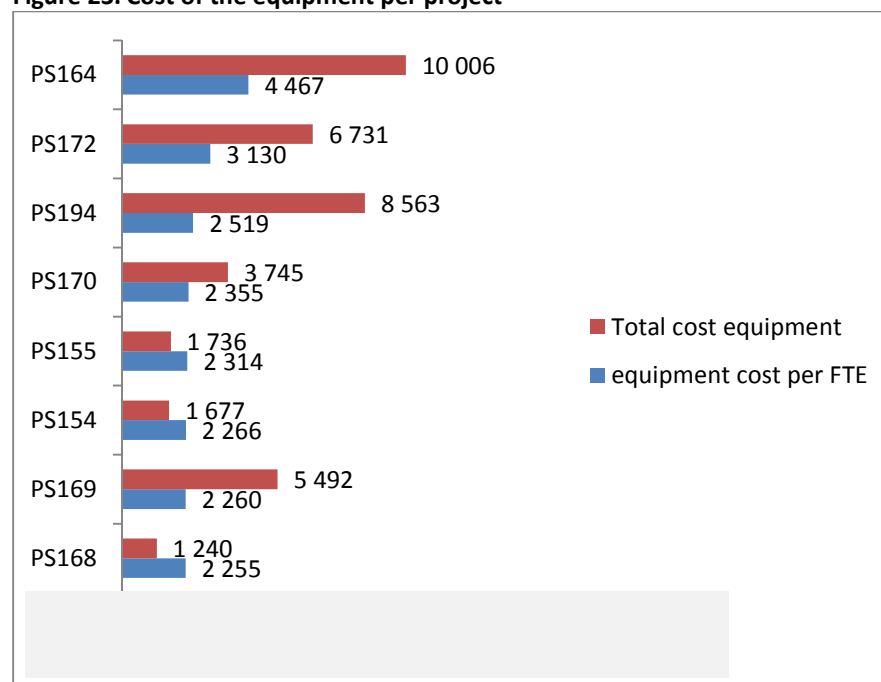
The cost of equipment

Equipment and transportation costs should not have a large impact on the distribution of the cost per beneficiary. For projects with important costs of equipment, the cost per beneficiary is often high (PS164, PS172).

Table 6. Distribution of the equipment cost per beneficiary (in euro)

	Total equipment cost per beneficiary	Number of beneficiaries	Total equipment cost
PS164	238	42	10 006
PS172	127	53	6 731
PS169	114	48	5 492
PS154	99	17	1 677
PS155	96	18	1 736
PS170	76	49	3 745
PS194	58	148	8 563
PS168	26	48	1 240

The total mean cost of the equipment for psychological projects is 2 747 euro per FTE. For the two projects with the highest cost per beneficiary, there is also a high cost per FTE, PS164 and PS172 with 4 467 and 3 130 euro per FTE. For the first one, a possible explanation is the important cost per beneficiary independently of the number of FTE (a total of 5 100 euro for 2012 of material, an individualized beneficiary supply, 100 euro per beneficiary). For the second most costly project per FTE, the cost can be partly explained by an important investment in communication tools (1 300 euro in 2012).

Figure 23. Cost of the equipment per project


The transport costs

Only 3 projects of psychological support gave information about transport costs. The interval is quite large, between 4 and 62 euro per beneficiary per year).

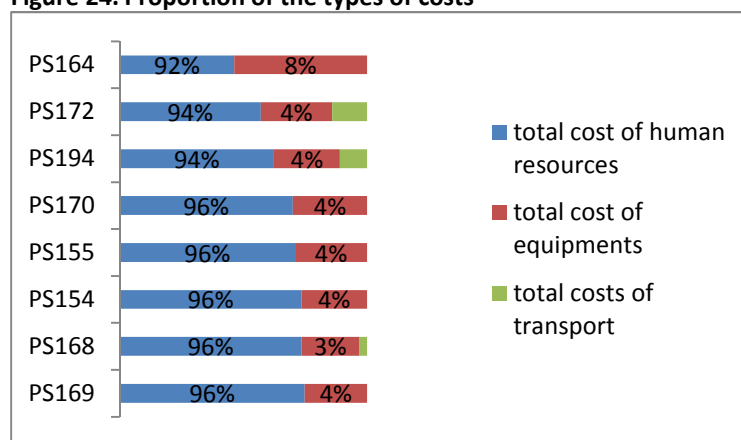
Table 7. Transport costs (in euro)

	Total transportation cost per beneficiary	Total transportation costs in 2012
PS168	4	175
PS172	62	3 302
PS194	24	3 532

The total cost

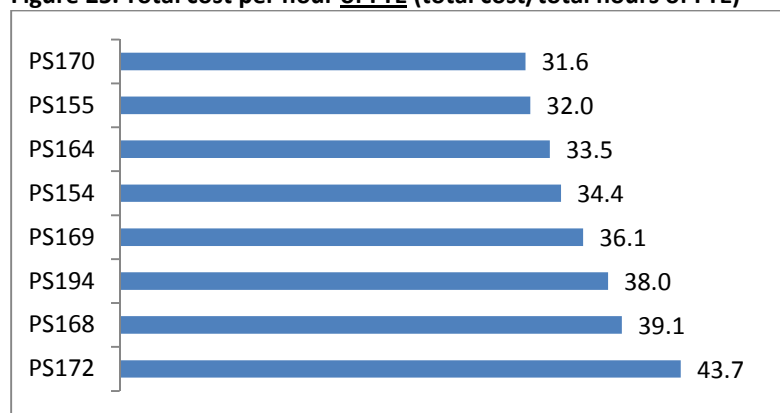
Cost of equipment and transport does not change a lot the level of total costs as human resources represent between 92% and 96% of the total cost.

Figure 24. Proportion of the types of costs



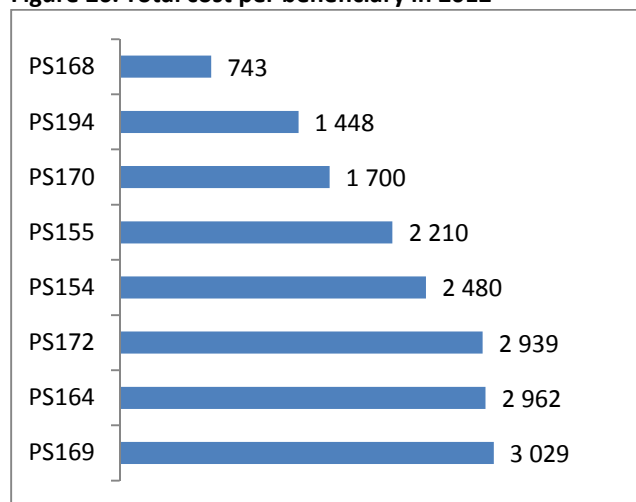
The total cost per hour of FTE is mostly influenced by the level of salary. The range of the total cost per hour per FTE varies from 31.6 to 43.7 euro (the highest hour rate represents 38% more than the lowest rate).

Figure 25. Total cost per hour of FTE (total cost/total hours of FTE)



The total cost per beneficiary for psychological support varies from 743 to 3029 euro.

Figure 26. Total cost per beneficiary in 2012



3.1.3 Synthesis of the levels of resources used

The graph below shows a possible relation between the level of caring time and the total cost per beneficiary. The main explicative factor of the total cost per beneficiary remains the proportion of FTE per beneficiary. 2 other factors can also slightly influence the total cost per beneficiary: the level of salary and the proportion of FTE dedicated to the caring function. For the project PS169 and PS164, all professionals dedicated to caring are psychologists. Other projects often employ bachelor psychologists. Moreover, for the same level of diploma, there are important differences between salaries (see in appendix the median salary cost per profession per FTE).

The number of hours of caring per beneficiary per project ranges from 1 to 6.6 hours per month. The interval of the total cost per beneficiary is also significant: 743 euro and 2 962 euro.

Figure 27. Total cost per beneficiary (in euro) according to the time per beneficiary (FTE dedicated to caring in hour, per month)

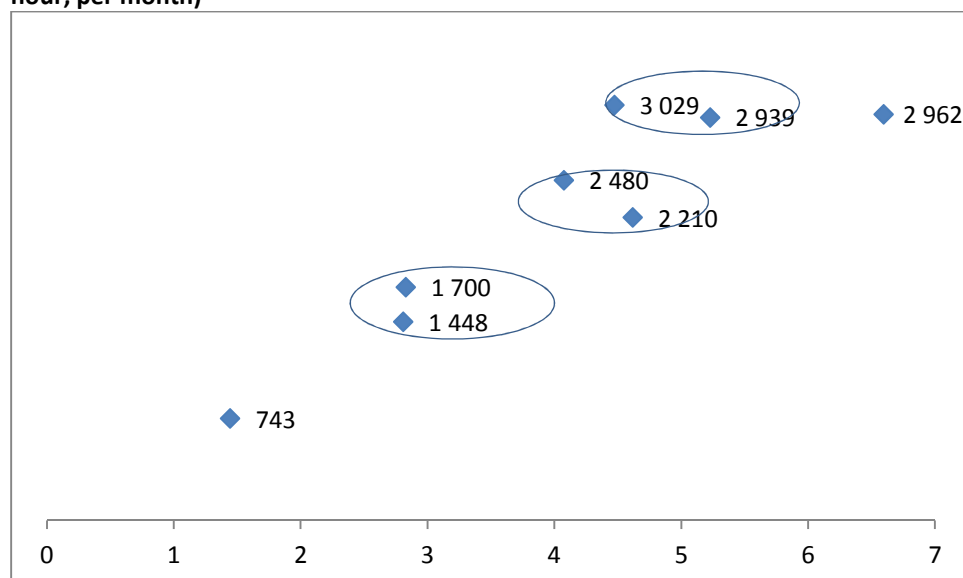


Table 8. Time per month and yearly total cost per beneficiary

	Time per beneficiary per month (hour)	Total yearly total cost per beneficiary
PS169	4.5	3 029
PS164	6.6	2 962
PS172	5.2	2 939
PS154	4.1	2 480
PS155	4.6	2 210
PS170	2.8	1 700
PS194	2.8	1 448
PS168	1.4	743

Question: what are the main factors of the level of cost per beneficiary for psychological support?

3.1.4 The relation between the beneficiary profile and the cost per beneficiary

Question : does the beneficiary cost vary according to the level of impairment ?

Except for the project PS169, there are a sufficient number of beneficiaries encoded in the BelRAI (representing the caseload, except for one project, the proportion is calculated for 30% of the beneficiaries), for the scales DRS and CPS and the cut-off point. A benchmarking of the profile of beneficiaries is possible in order to measure the discrepancies between the levels of the beneficiary cost and the impairment.

There is no link with severity of depression or cognitive impairment and the cost per beneficiary for the psychological support.

Figure 28. Proportion of beneficiaries with a DRS score >3 (abscissa) and a CPS score >3 (ordinate) and the cost per beneficiary (size of circles)

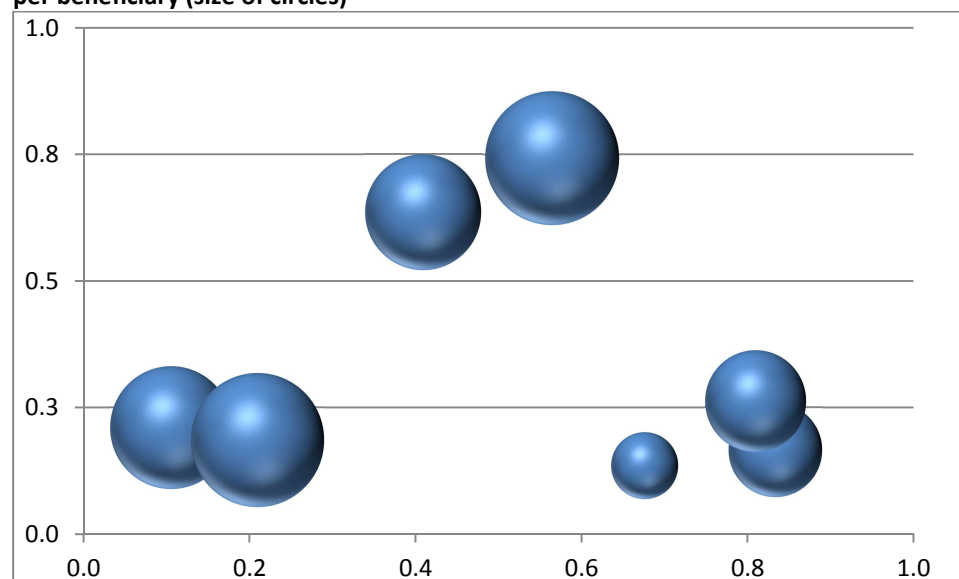
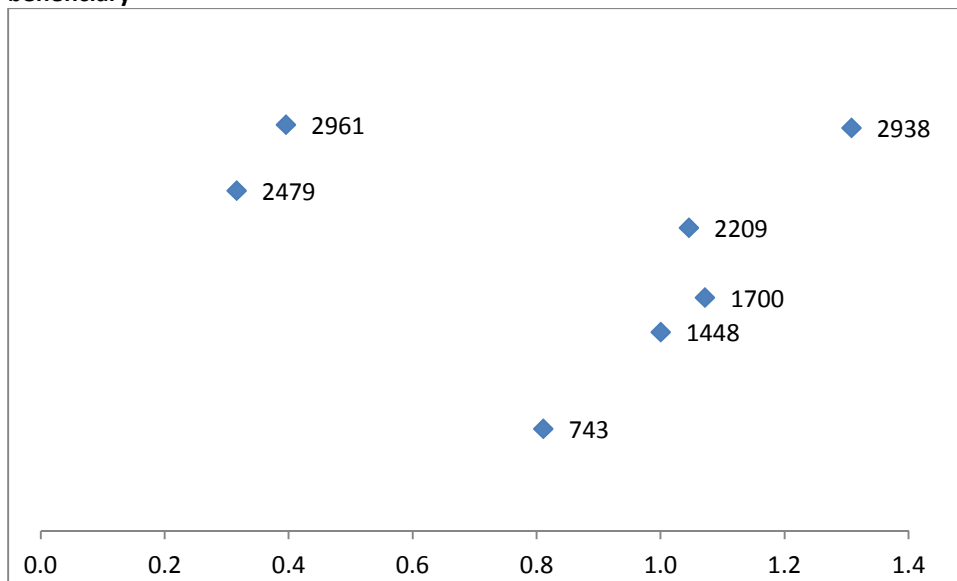


Figure 29. Cumulate proportion of DRS and CPS beneficiary (with scores > cut-off point) and the cost per beneficiary



- There are important differences of the level of human resources used per beneficiaries in psychological support projects (the total number of beneficiaries per FTE varies from 19 to 87).
- The differences still subsist when only the total number of FTE dedicated to caring is considered (between 1.4 to 6.6 hours per month).
- The mean salary cost per year, per FTE, varies from 50 044 to 67 780 euro
- The total yearly cost per beneficiary varies from 743 to 3 029 euro, between 2 to 8.3 euro per day (over 365 days).
- There is no clear link between the level of cost and the level of impairment (depression and cognitive problems)

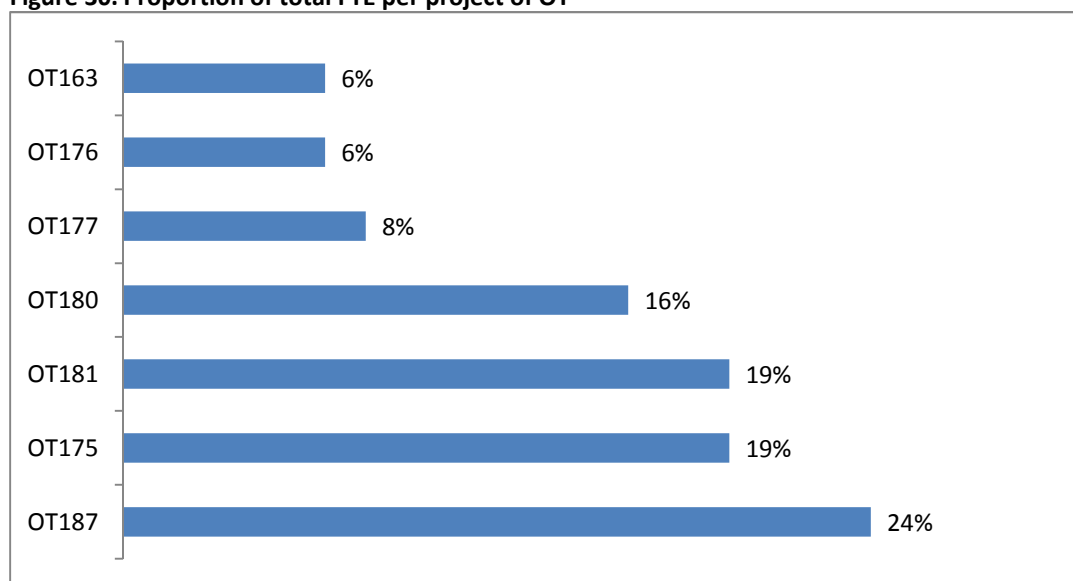
3.2 Occupational therapy

3.2.1 The quantity of the human resources used

There are 2 groups of projects of OT according to the number of FTE employed:

- Small projects representing 6% of the total FTE for OT projects.
- Medium projects (between 16 and 19%)
- One relatively big project with 24% of the total FTE

Figure 30. Proportion of total FTE per project of OT

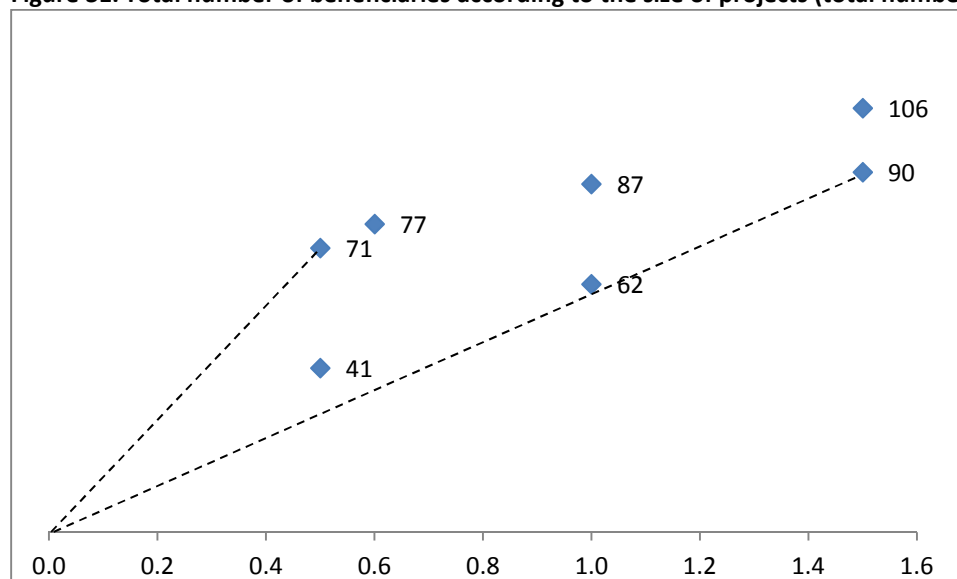


Question: do bigger projects in term of FTE have more beneficiaries?

Overall, there is no relation between the number of FTE and the total beneficiaries. Nevertheless, this relation seems quiet chaotic per group of projects.

- 1 projects with the lowest number of beneficiaries (OT175),
- 2 project with the highest level of beneficiary per FTE (OT177 OT176), this small projects with less than 1 FTE.

Figure 31. Total number of beneficiaries according to the size of projects (total number of FTE)



The total number of beneficiaries per FTE varies between 41 to 142 (3.4 times between the two extreme values).

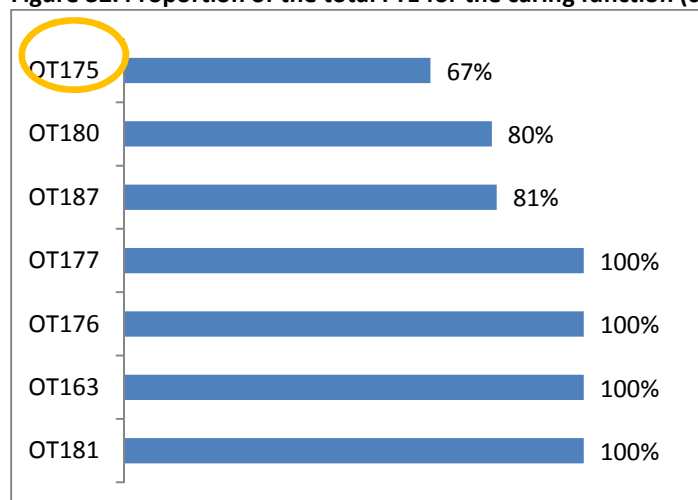
Table 9. Total FTE and beneficiaries in 2012

	total FTE	Total beneficiaries	Beneficiaries/FTE
OT176	0.5	71	142
OT177	0.6	77	128
OT163	0.5	41	82
OT180	1.25	87	70
OT181	1.5	90	60
OT187	1.85	106	57
OT175	1.5	62	41

This analysis has to be completed by the identification of the number of FTE used in the caring function. Indeed, projects with a low level of FTE for caring have relatively more important cost for the other functions (administration, organization, management of the project).

There are 3 groups of projects according to the proportion of FTE dedicated to the caring function:

- Low level: the biggest project in term of FTE has the lowest level of FTE for caring (67%). The other projects have significantly more FTE for caring (67%) but this proportion is still much lower than the projects in the medium level group. This is the project outlier in its group (OT175) with a low number of beneficiaries compared to similar projects.
- Medium level: around 80% of the FTE dedicated to the caring function.
- High level (100%): this is the smallest projects, 3 with less than 1 FTE and 1 project with 1.5 FTE.

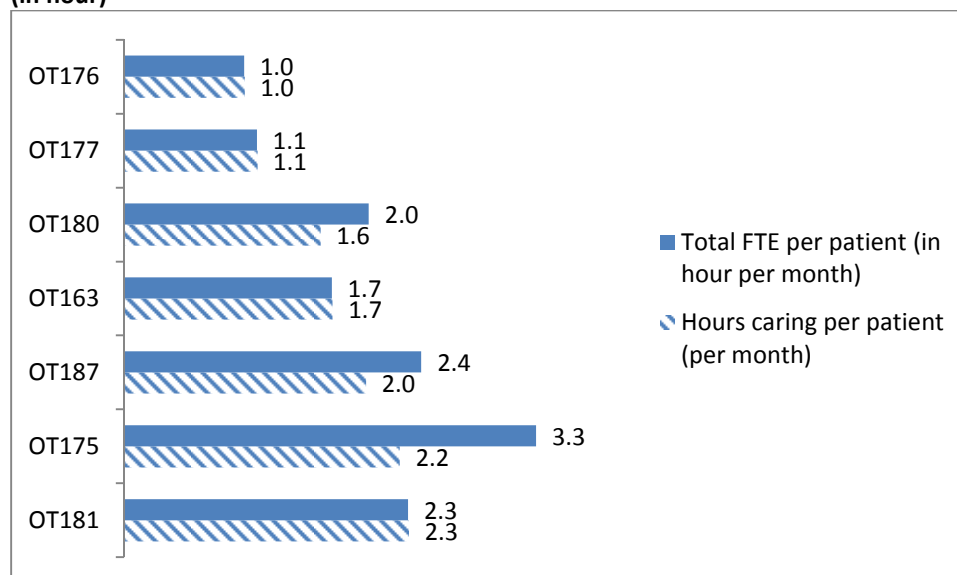
Figure 32. Proportion of the total FTE for the caring function (caring with or without any other function)

The ratio of the proportion FTE dedicated to caring has to be discussed regarding the functioning of the project. Question: can projects with 100% of FTE dedicated to caring properly function (according the professionals)? See the report of the implementation analysis about occupational therapy ([p.182](#)).

The range of the total time available per month per beneficiary for the caring function is between 1 hour and 2.7 hours (the interval is much lower than in the psychological support projects).

The smallest (according to the total FTE) projects have the lowest time available per beneficiary (around 1 hour), except for one project, the outlier of the group, with 1.7 hours (OT163). This is the project with a significant low number of beneficiaries compared to the two other projects with same number of FTE.

The other outlier OT175, with the lowest proportion of caring time in the total of FTE, has a relative high level of time available (2.2 per month).

Figure 33. Total time available per month* per beneficiary for the professions with the caring function (in hour)

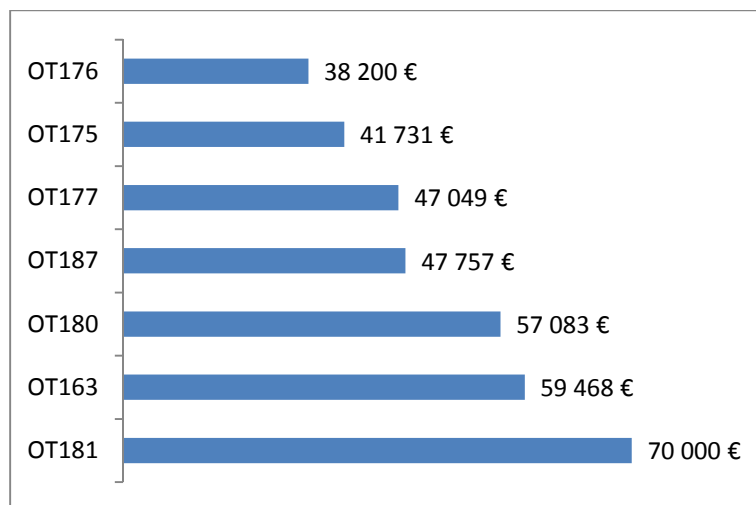
*Total monthly time in hour (221 working days per year for an average per day of 7.5 hours)

Almost all projects employ occupational therapist, except in one project: the professional with the caring function is a public healthcare undergraduate (OT180).

3.2.2 The cost analysis

The most costly project per FTE is 70 000 euro, which represents 45% more than the cheapest cost per FTE (38 200).

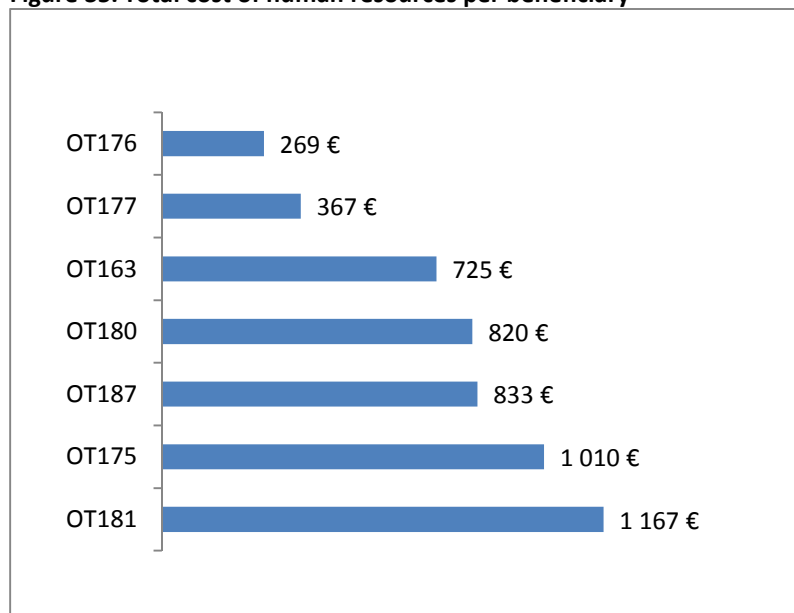
Figure 34. Mean salary cost per project (per FTE)



The total cost per beneficiary for human resources slightly differs from the total FTE time per beneficiary and the cost per professional. Nevertheless, the main factor to explain the total cost per beneficiary is the total number of FTE available per beneficiary. The graph below about the total cost of human resources per beneficiary is almost in the same order as the graph about the time available per beneficiary for the caring function.

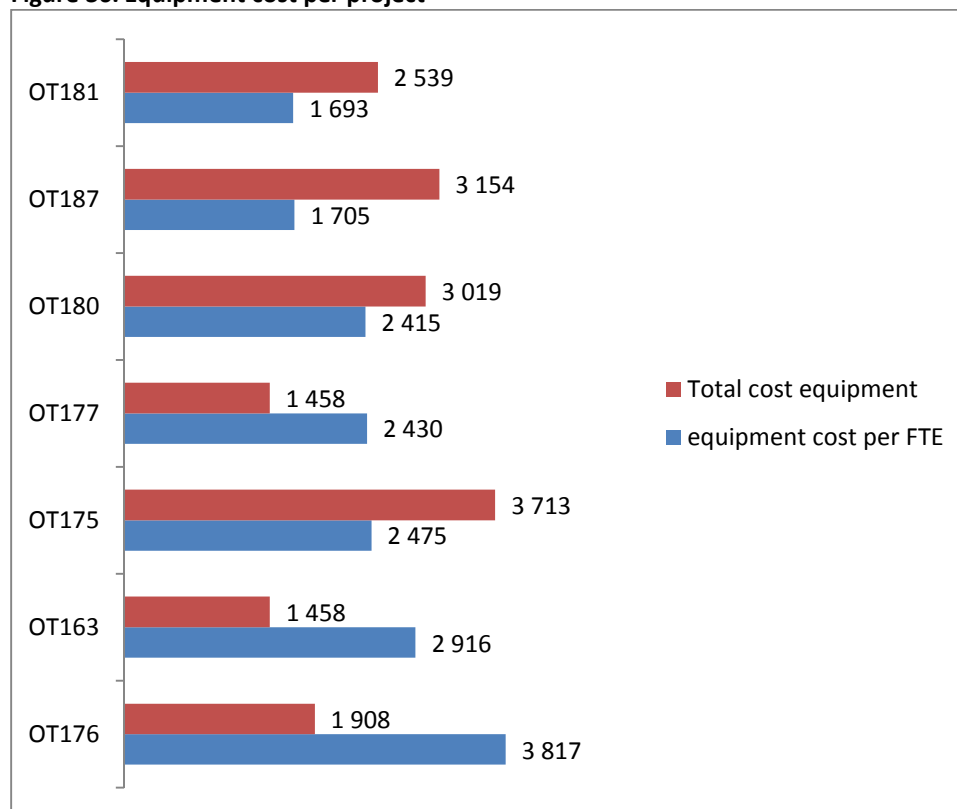
The interval is important between 269 and 1167 euro (except the outlier OT192) and it is influenced by both the time of caring per beneficiary and the level of salaries in projects.

Figure 35. Total cost of human resources per beneficiary



The equipment and transport

Figure 36. Equipment cost per project



*Projects with a higher cost per FTE have a total FTE<1.

The total cost of the equipment is low compared to the total cost of human resources per beneficiary (between 269 and 1167 euro). The interval is between 19 euro and 60.

	Total equipment cost per beneficiary	Number of beneficiaries	Total equipment cost
OT175	60	62	3 713
OT163	36	41	1 458
OT180	35	87	3 019
OT187	30	106	3 154
OT181	28	90	2 539
OT176	27	71	1 908
OT177	19	77	1 458

Transport costs are not important except for the projects (OT187).

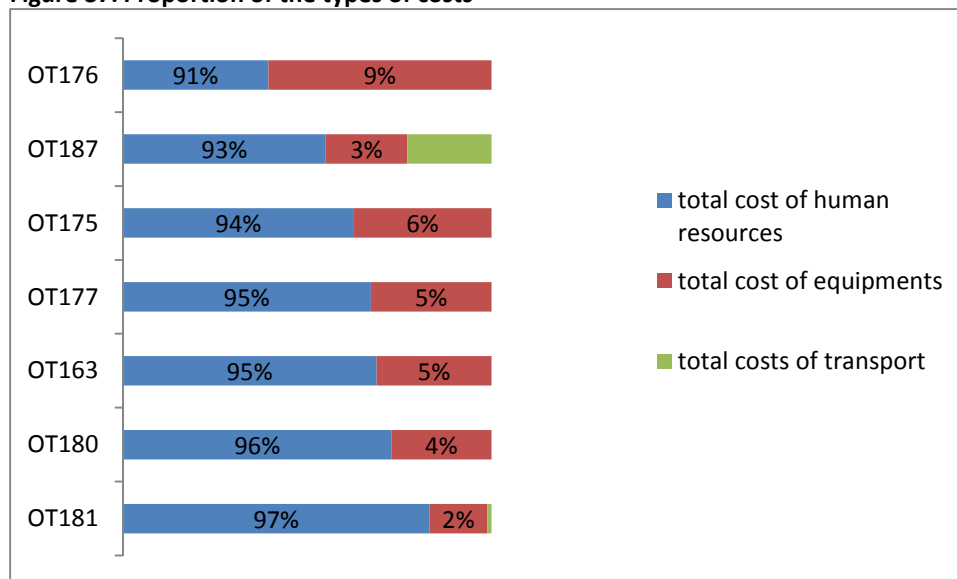
Table 10. Total costs in 2012

	Total transportation costs
OT181	176
OT187	3242

The total cost

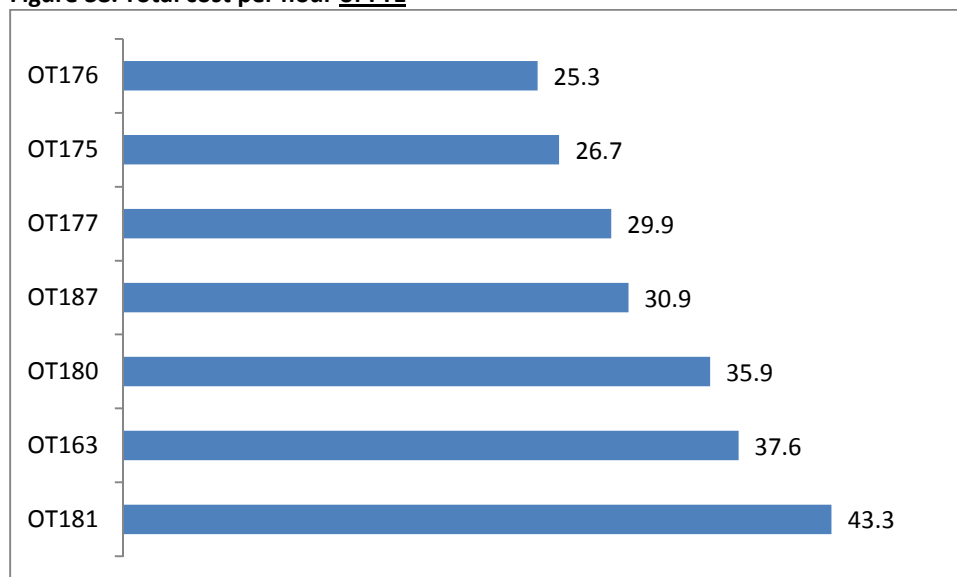
The cost of equipment and transport varies between 2% to 9% of the total costs.

Figure 37. Proportion of the types of costs



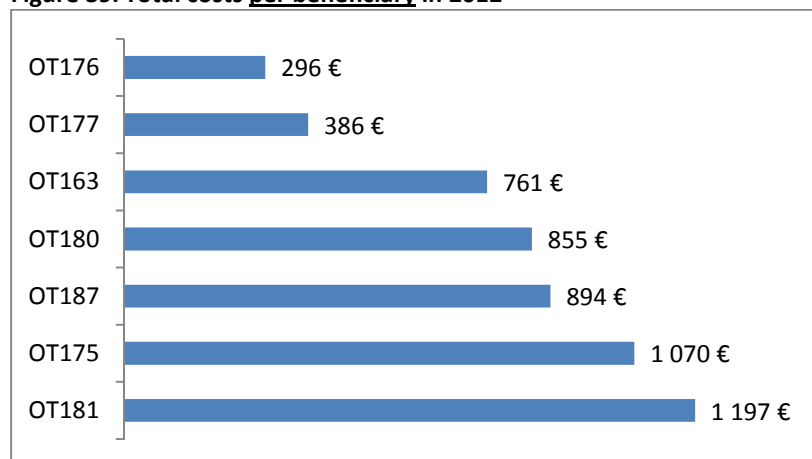
The total cost per hour varies between 25 and 43 euro for occupational therapy projects. The calculation is the following: $\text{total cost per year} / (\text{total FTE} * 221 * 7.5)$. The main explanation is the level of salaries because of the relative low proportion of the equipment and costs. Indeed, the ranking of the projects of the total cost per hour is the same as the ranking of the mean human resource cost per FTE.

Figure 38. Total cost per hour of FTE



Among occupational therapy projects, there are important discrepancies of cost per beneficiary. The interval is from 296 (NC176) to 1 197 euro (OT181).

Figure 39. Total costs per beneficiary in 2012



3.2.3 Synthesis of the levels of resources used

The relation between the cost per beneficiary and the time of caring per beneficiary is a rising function.

The most costly projects:

- OT175 (1070 euro per beneficiary in 2012) has a lower proportion of FTE dedicated to caring than other occupational therapy projects (67%) and a lower number of beneficiary (62) than other projects with same level of FTE.
- The project OT181 (1197 euro per beneficiary in 2012) has the highest total salary cost per FTE compared to other projects (70 000 euro).

The less costly projects: OT176 (296 euro per beneficiary in 2012) and OT 177, their mean salary cost is relatively low (38 200 and 47 049 euro per FTE) and the number of beneficiaries is relatively high compared to the total FTE.

Figure 40. Total cost per beneficiary (in euro) according to the time per beneficiary (in hour, per month)

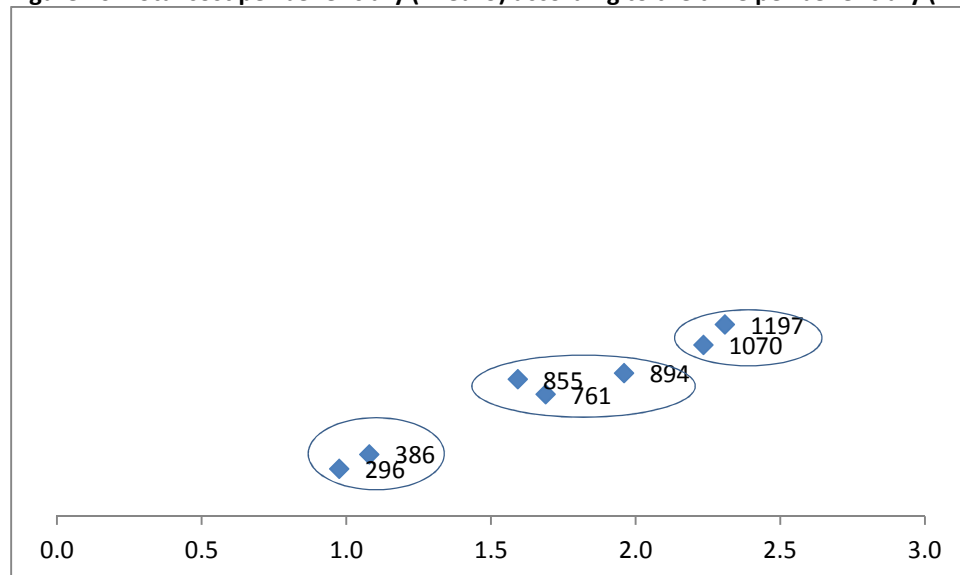


Table 11. Time per month and yearly total cost per beneficiary

	Time per beneficiary per month (hour)	Total yearly total cost per beneficiary
OT176	1.0	296
OT177	1.1	386
OT163	1.7	761
OT180	1.6	855
OT187	2.0	894
OT175	2.2	1070
OT181	2.3	1197

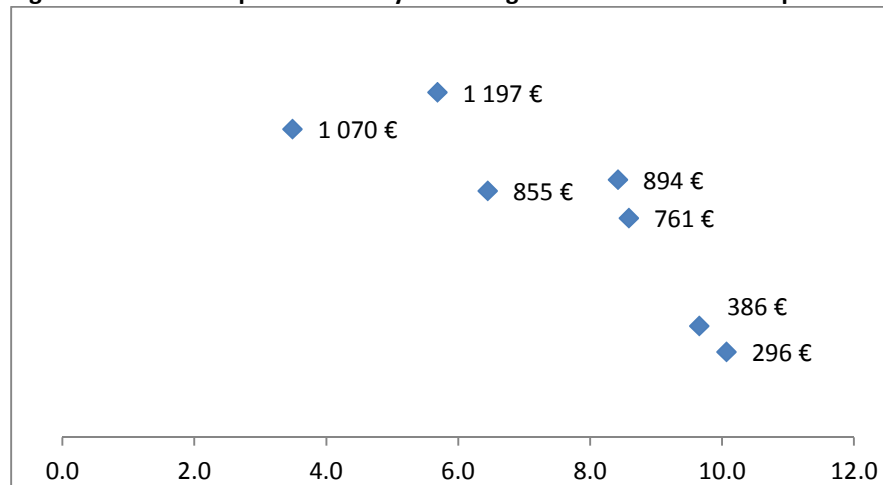
The total cost per beneficiary is mainly explained by the number of beneficiaries per FTE (the table below shows the same order of projects as the [Table 9](#)).

3.2.4 The relation between the beneficiary profile and the cost per beneficiary

Question : does the beneficiary cost vary according to the level of impairment ?

The project OT175 has a limited number of beneficiaries for whom the scales ADL, IADL, CPS and DRS were filled out (about 15% of the caseload).

The cost of occupational therapy seems to decrease with the level of impairment. This might be due to the needs and/or the possibilities of improvements. A highly impaired person might have already done some home adaptations and/or the person may not need an intensive intervention as the occupational therapy can only marginally benefit the severe impaired person.

Figure 41. Total cost per beneficiary according to the mean level of impairment (ADL+IADL/8+CPS)


- There are important differences of quantities of human resources used, between 41 to 142 beneficiaries per FTE.
- The range of the level human resources used for caring is close to the range of the total FTE employed (between 1 to 2 hours per month per beneficiaries), except for one project (OT175).
- There are important differences of the salary costs per FTE, between 38 200 to 70 000 euro.
- Projects using a low level of human resources per beneficiary are the projects with low level of salaries (OT176 OT177)
- The total cost per beneficiary, per year in 2012 for occupational therapy projects varies from 296 to 1197 euro.
- The total cost per beneficiary seems to decrease according to the level of impairment (according the mean score on IADL, ADL, and CPS scales).

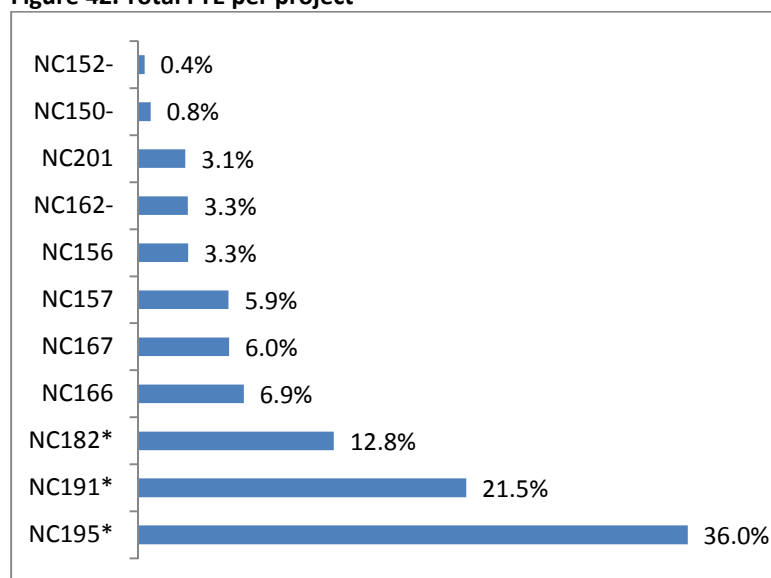
3.3 Night care projects

3.3.1 The quantity of the human resources used

The size of projects is variable in night care projects:

- Projects of night hostel are very small and represent between 0.4 and 3.3% of the total FTE employed in night care projects.
- Project of night care at home, several beneficiaries per night, represent about 6% of the total FTE of night care projects (except one project with only 3% of the total FTE of the category).
- Projects of night at home, the whole night, are the biggest projects (13%, 21% and 36% of the total FTE).

Figure 42. Total FTE per project



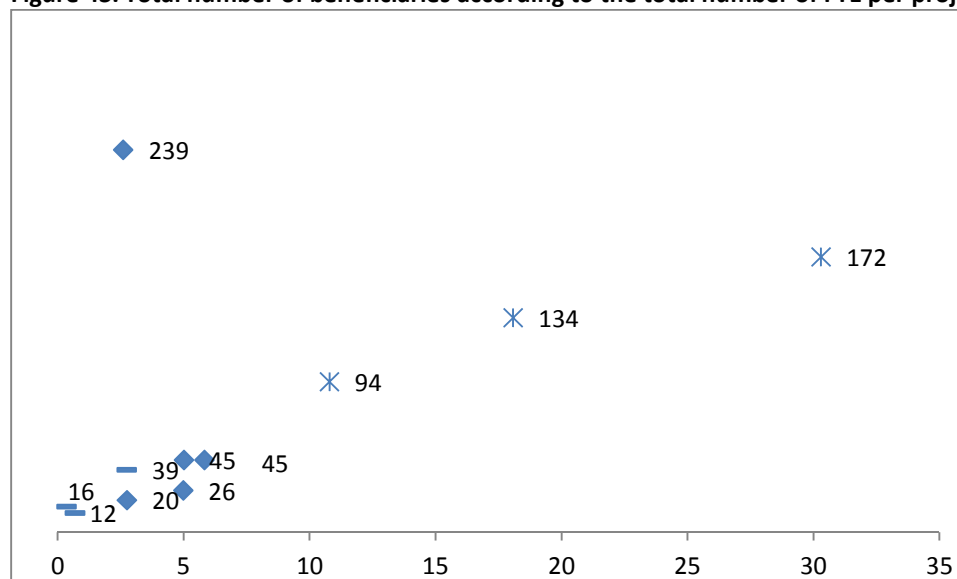
* Projects of night care at home, the whole night for one beneficiary

- Projects of night hostel

Other projects of high care at home, visits of several beneficiaries per night

Question: do bigger projects in term of FTE have more beneficiaries?

- Projects of night hostel with a low number of FTE have also a low number of beneficiaries during the year, less than 40 beneficiaries.
- Projects of night care at home, visits of several beneficiaries per night have different numbers of beneficiaries, (one with 26 and 2 with 45). There is an outlier with 239 beneficiaries. Differences may be explained by the duration of the intervention. While the three projects with 45 beneficiaries or less may have a permanent intervention, the project with 239 beneficiaries in 2012 have considered as beneficiaries, the FOP on a passive list: they do not benefit from night care services yet but there are included in the projects in case of urgent need.
- Projects of night care at home providing one person per beneficiary per night have more beneficiaries over the year but projects limits the number of nights per beneficiary per week (maximum 3).

Figure 43. Total number of beneficiaries according to the total number of FTE per project


— Night hostel

* Night care at home, the whole night for one beneficiary

◆ Night care at home, visits of several beneficiaries per night

Two projects of night hostel use a different level of human resources with 46 beneficiaries per FTE for the project NC152 and 17 for the project NC 150.

Table 12. Total FTE (%) and beneficiaries in 2012

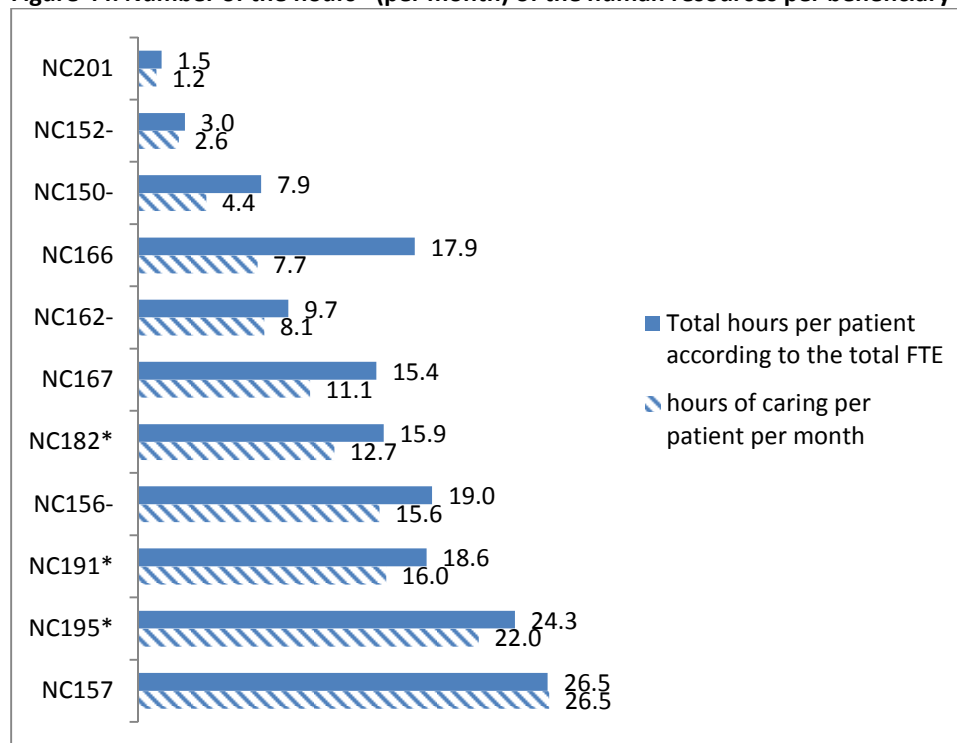
	Total beneficiaries	FTE	Beneficiaries/FTE	Type of night care
NC152-	16	0.35	46	Night hostel
NC150-	12	0.69	17	
NC201	239	2.6	92	Night care at home
NC162-	39	2.74	14	Night hostel
NC156-	20	2.75	7	Night care at home, several beneficiaries per night
NC157	26	4.98	5	
NC167	45	5.01	9	
NC166	45	5.82	8	
NC182*	94	10.79	9	Night care at home, the whole night
NC191*	134	18.08	7	
NC195*	172	30.3	6	

The ratio FTE/beneficiary (in hours per month) shows more outliers within subgroups than on the previous graph:

- For projects providing care for several beneficiaries per night, there are two extreme outliers with one project (NC 157) using 26.5 hours per month while another project (NC 201) have only 1.5 hour per month per beneficiary. The project with the highest number of hours per beneficiary per month (NC 157) has a higher number of hours of caring per beneficiaries than projects providing care for the whole night. The two other projects are similar and are between the outliers, (NC166 and NC 167) with 17.9 and 15.4 hours per beneficiary. The project NC 166 has a significantly smaller number of hours dedicated to caring than the other projects of night care, several beneficiaries per night, with only 7.7 hours for caring (over a total of 17.9).

- For projects providing care for the whole night per beneficiary, the level of hours per beneficiary is relatively high, the 3 projects are between 15.9 and 24.3 hours per beneficiary per month.
- Projects of night hostel have a relatively low level of hours per month per beneficiary with an interval between 3 and 9.7 hours per month per beneficiary.

Figure 44. Number of the hours* (per month) of the human resources per beneficiary



* Projects of night care at home, the whole night for one beneficiary

-Projects of night hostel

Other projects of high care at home, visits of several beneficiaries per night

* Projects of night care at home, the whole night for one beneficiary

-Projects of night hostel

Other projects of high care at home, visits of several beneficiaries per night

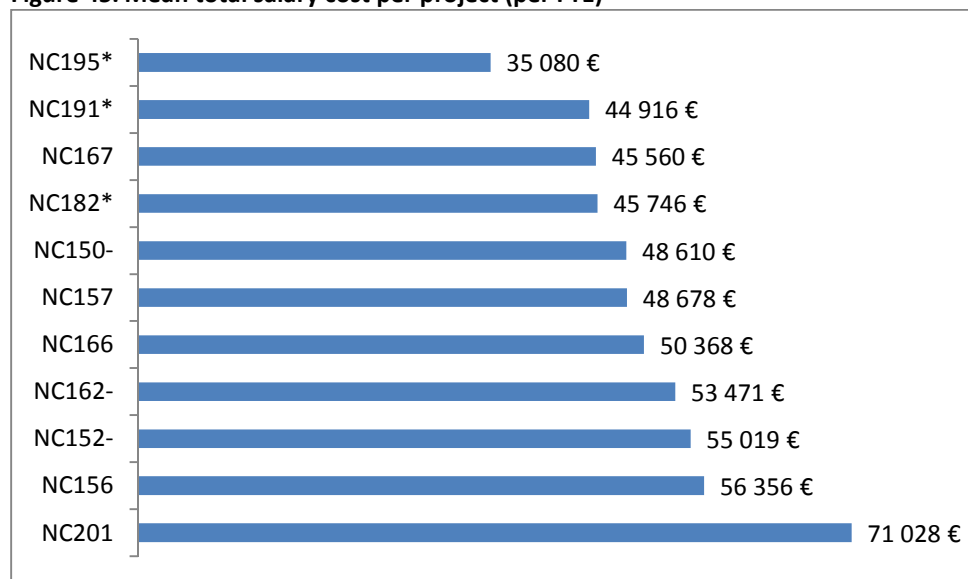
The nursing assistant is the profession the most represented for the caring function in night care projects.

3.3.2 The costs analysis

The cost of human resources

2 night hostel projects have a low mean of salary of night care projects and 1 night hostel project have the highest mean of salary (71 028). The interval is high with almost twice the lowest mean of salary (35 080 to 71 028 euro). The mean of salary is influenced by the proportion of FTE of high salaries, mainly for the professions of management, e.g. director. Small projects, with a low number of FTE have a higher level of salary mean when there is a director working in the project. For projects with many FTE, the salary of the director does not influence a lot the mean salary.

Figure 45. Mean total salary cost per project (per FTE)



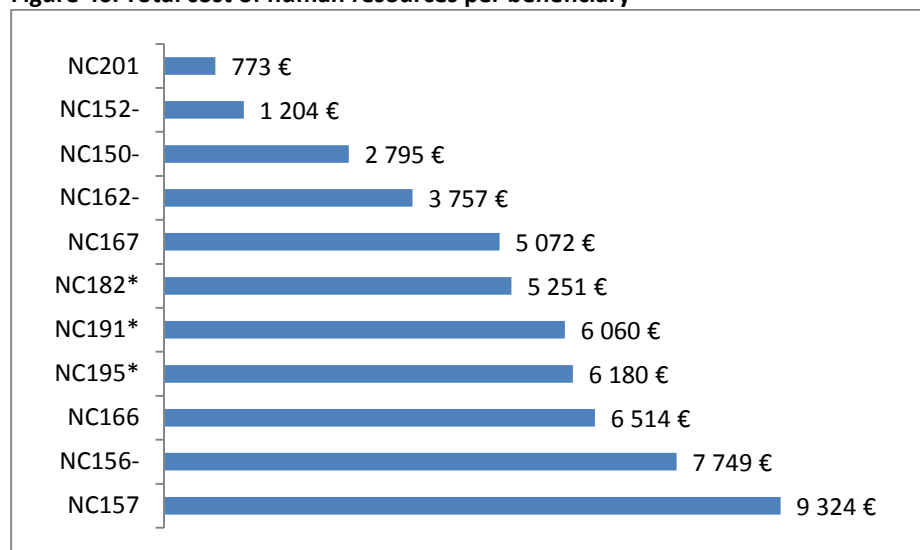
* Projects of night care at home, the whole night for one beneficiary

- Projects of night hostel

Other projects of high care at home, visits of several beneficiaries per night

- Project of night hostels have a mean cost of human resources per beneficiary relatively low compared to other projects (except one project providing care at home for several beneficiaries per night), between 1 204 and 3 757 euro per beneficiary for 2012. This result can be explained by several factors: the main one is the ratio FTE per beneficiary which is relatively low compared to other projects (see [Figure 44](#)). And the second factor is the intensity of the intervention, night hostels are less intensively used than night care at home. There is one outlier of night hostel with a high level of cost of human resources NC156 (7 749 euro per beneficiary).
- Projects providing care the whole night at home have a high level of cost per beneficiary but are not the most costly (between 5 251 and 6 060 euro per beneficiary in 2012).
- There are 2 projects providing visits for several beneficiaries per night with 5 075 euro per beneficiary (NC 167) and 6 514 euro (NC166) and the outlier(NC157) of the whole category of night care projects with the highest cost per beneficiary (9 324 euro).

Figure 46. Total cost of human resources per beneficiary



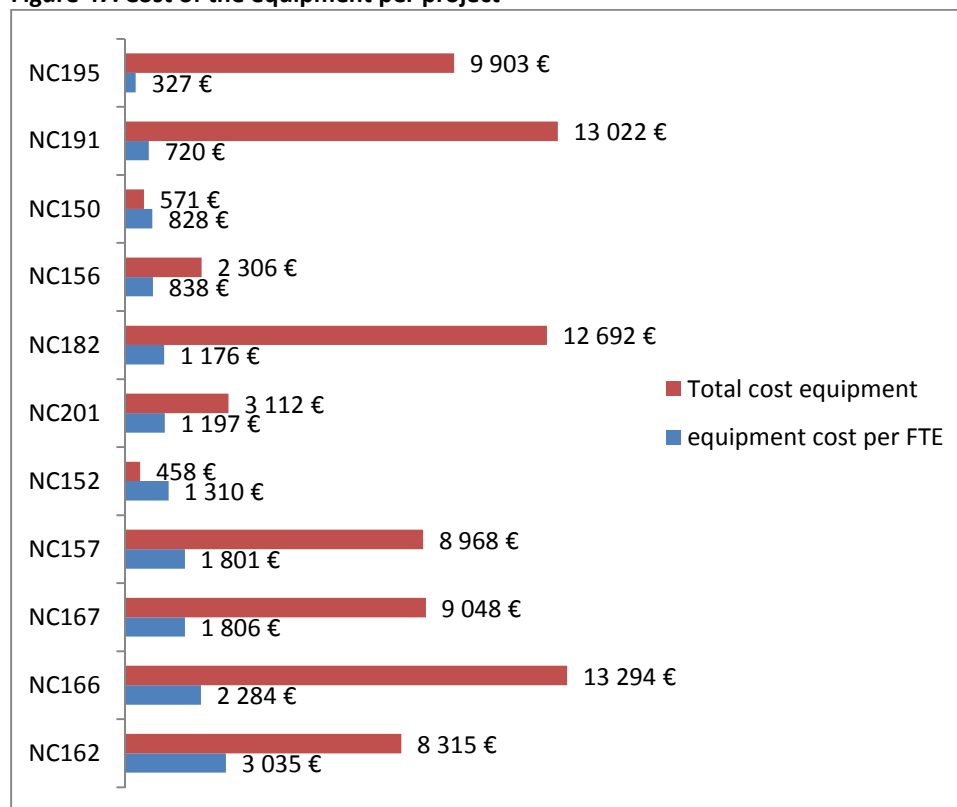
* Projects of night care at home, the whole night for one beneficiary

- Projects of night hostel

Other projects of high care at home, visits of several beneficiaries per night

The cost of equipment

For projects of night hostel, the cost of the accommodation equipment is not included as the conditions of survey did not allow the assessment of resources of intervention providing accommodation services. Indeed, the questionnaire was not designed to reliably assess accommodation equipment as it would have required another structuration of questions. Moreover, the use of the accommodation equipment may be shared between different organizations, thus hindering an accurate distribution of costs for P3 projects.

Figure 47. Cost of the equipment per project


Transport costs

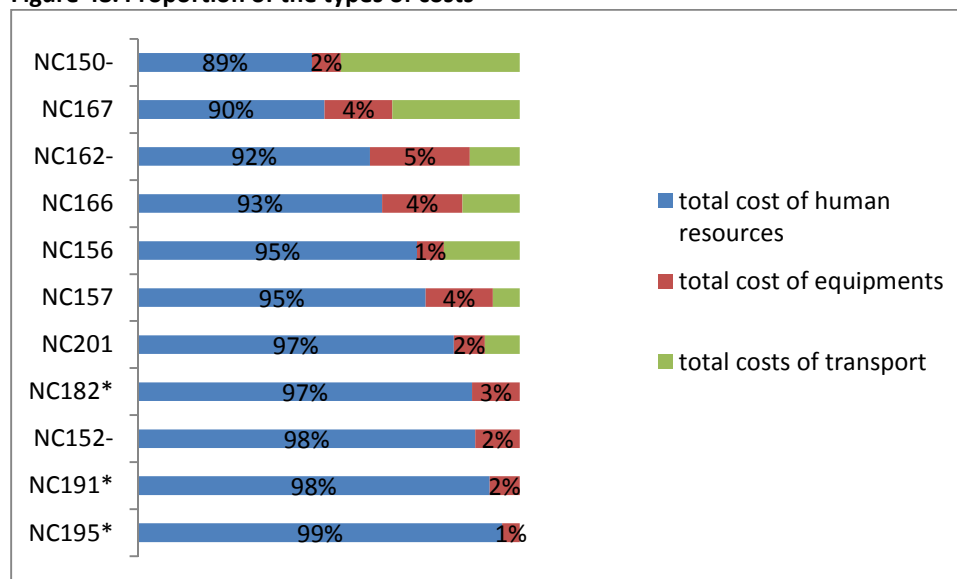
Table 13. Transport costs (in euro)

	Transportation cost per beneficiary	Total transportation cost	Type of night care
NC201	15	3 498 €	Night care at home
NC162	107	4 164 €	Night hostel
NC157	139	3 616 €	Night care at home
NC166	211	9 503 €	
NC150	294	3 530 €	Night hostel
NC156	326	6 517 €	
NC167	377	16 975 €	Night care at home

The total cost

The costs of human resources represent the most important part of the total cost (except for the night hostels, without the cost of the equipment), between 89% and 95%.

Figure 48. Proportion of the types of costs



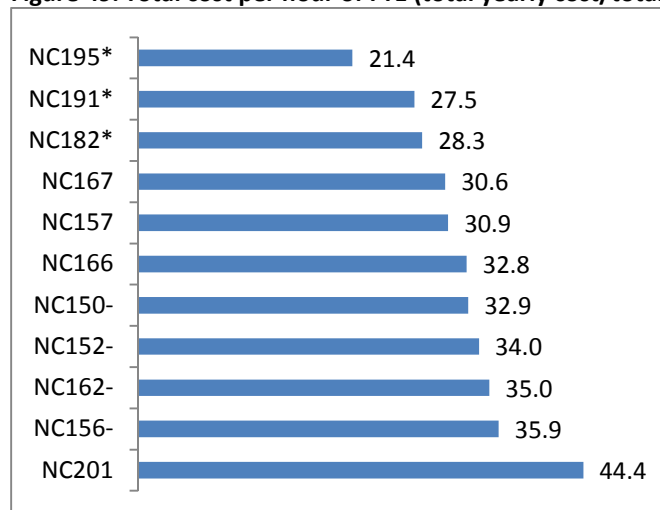
* Projects of night care at home, the whole night for one beneficiary

- Projects of night hostel

Other projects of high care at home, visits of several beneficiaries per night

The total cost per hour of FTE is the lowest for projects providing night care at home for the whole night per beneficiary. This total cost per hour is mainly influenced by the level of salaries and qualifications in the projects. Small projects may have a higher mean cost per hour of FTE as high salaries of management professions weight more than in project with more FTE for caring.

Figure 49. Total cost per hour of FTE (total yearly cost/total hours of FTE per year)



* Projects of night care at home, the whole night for one beneficiary

- Projects of night hostel

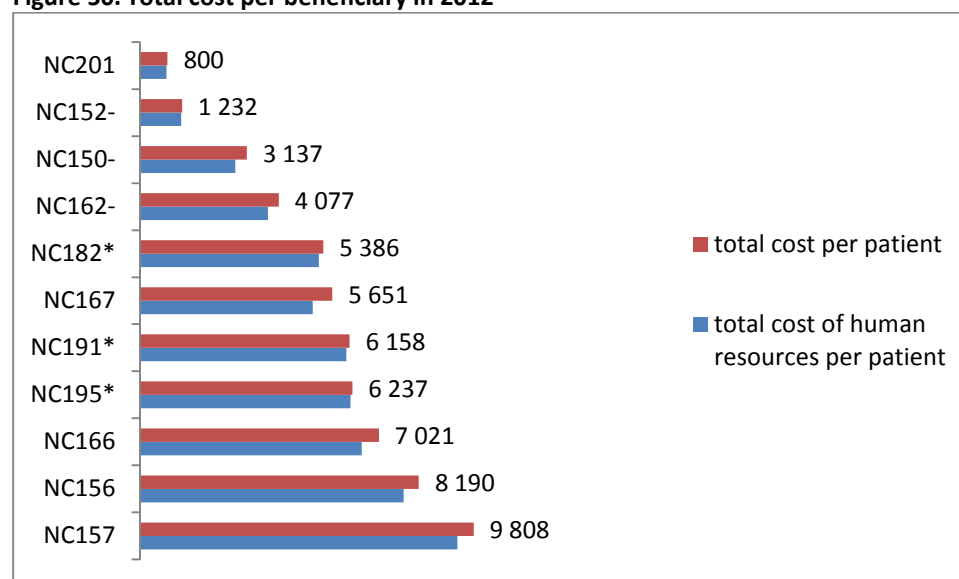
Other projects of high care at home, visits of several beneficiaries per night

The total cost per beneficiary does not differ a lot from the total cost of the human resources, the costs of the equipment does not represent an important proportion of the cost (for night hostel, this is also due to the exclusion of the equipment of accommodation).

The services of night care at home are more costly than the service of night hostel. Nevertheless, there are some outliers, NC156, with the second highest cost per beneficiary (8 190 euro) and the project

NC201 of night care at home (several beneficiaries per night) with the lowest cost per beneficiary, only 800 euro in 2012.

Figure 50. Total cost per beneficiary in 2012



* Projects of night care at home, the whole night for one beneficiary

- Projects of night hostel

Other projects of high care at home, visits of several beneficiaries per night

3.3.3 Synthesis of the levels of resources used

Table 14. Time per month and yearly total cost per beneficiary

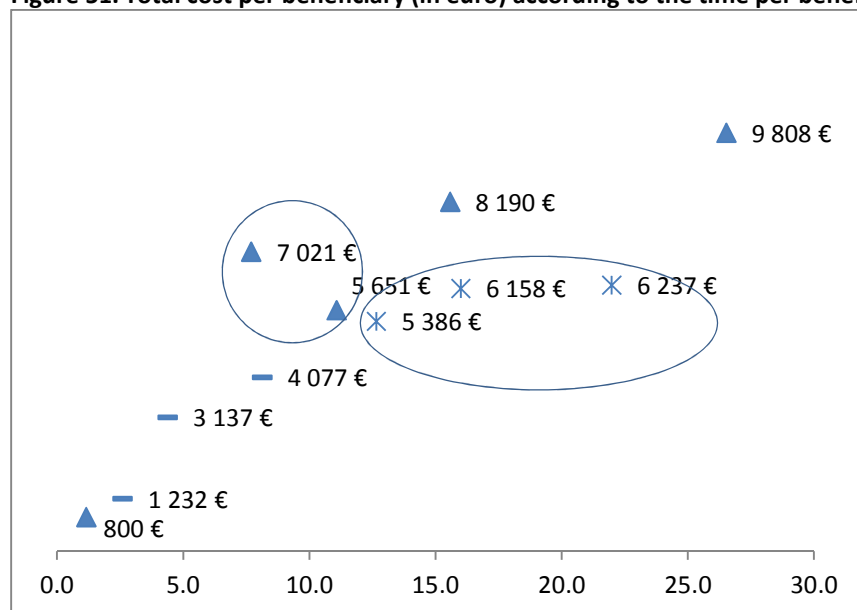
	Cost per beneficiary	Time FTE per month per beneficiary (hour)	Type of night care
NC201	800.	1.1	Night care at home
NC152	1232	2.5	Night hostel
NC150	3136	4.3	
NC162	4076	8.1	
NC182	5386	12.6	Night care at home, the whole night
NC167	5650	11.0	Night care at home
NC191	6157	16.0	Night care at home, the whole night
NC195	6237	21.9	
NC166	7020	7.6	Night care at home
NC156	8190	15.5	
NC157	9807	26.5	

The project of night care at home NC166 is costly compared to the similar project using same level of quantity of human resources. The main explanation is the proportion of FTE dedicated to caring, the project NC166 has an important proportion of time per beneficiary used to other functions, administrative, care organisation or project management. Thus, the number of beneficiary is limited by the number of FTE available for the care. This project has proportionally less beneficiaries per FTE than in other projects.

The projects providing care for one beneficiary per night have similar level of cost per beneficiary (NC191, NC182, NC195) but there are important differences in the time per beneficiary: 12.6 hours per

month for the project NC182 while the project NC195 have 21.9 hours per beneficiary per month. NC182 has a lower proportion of FTE of caring (80% see Figure 44).

Figure 51. Total cost per beneficiary (in euro) according to the time per beneficiary (in hour, per month)



- ▲ Night care at home, visits of several beneficiaries per night
- Night hostel
- * Night care at home, the whole night for one beneficiary

3.3.4 The relation between the beneficiary profile and the cost per beneficiary

Beneficiaries of night care projects are the most functionally impaired relatively to the other types of projects with the highest mean score of ADL and IADL scales. For cognitive troubles, night care projects are at the medium level compared to the other types of projects.

Figure 52. Mean ADL per project type

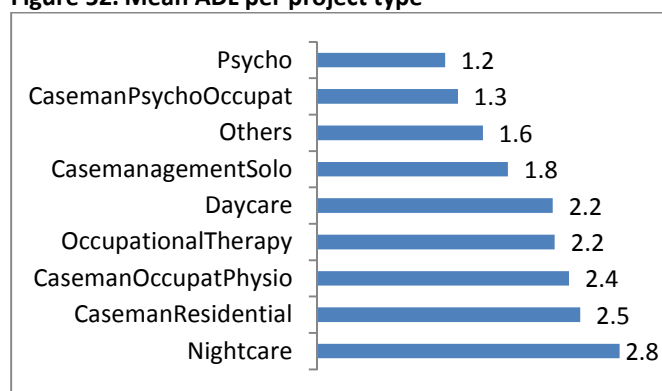


Figure 53. Mean IADL per project type

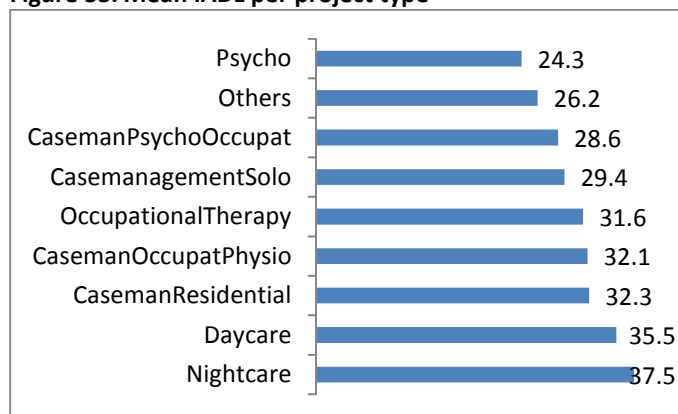
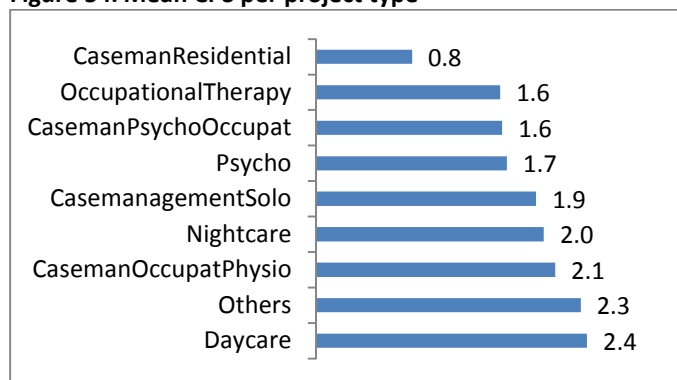
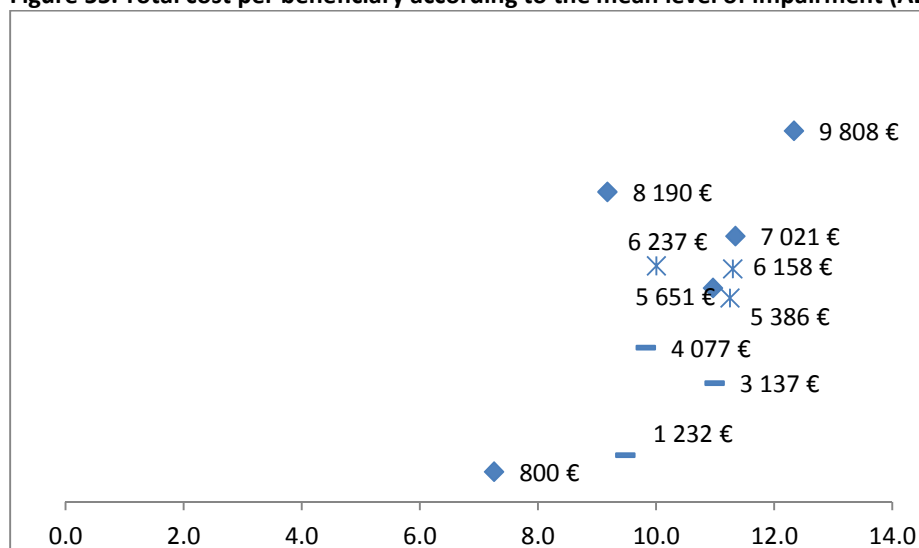


Figure 54. Mean CPS per project type



Beneficiaries have a total mean score lower than other night care projects for the cheapest project (NC201). For other projects, the difference of the mean score is not obvious. Another type of indicator is required to check whether there are important differences in the beneficiary profile in night care projects.

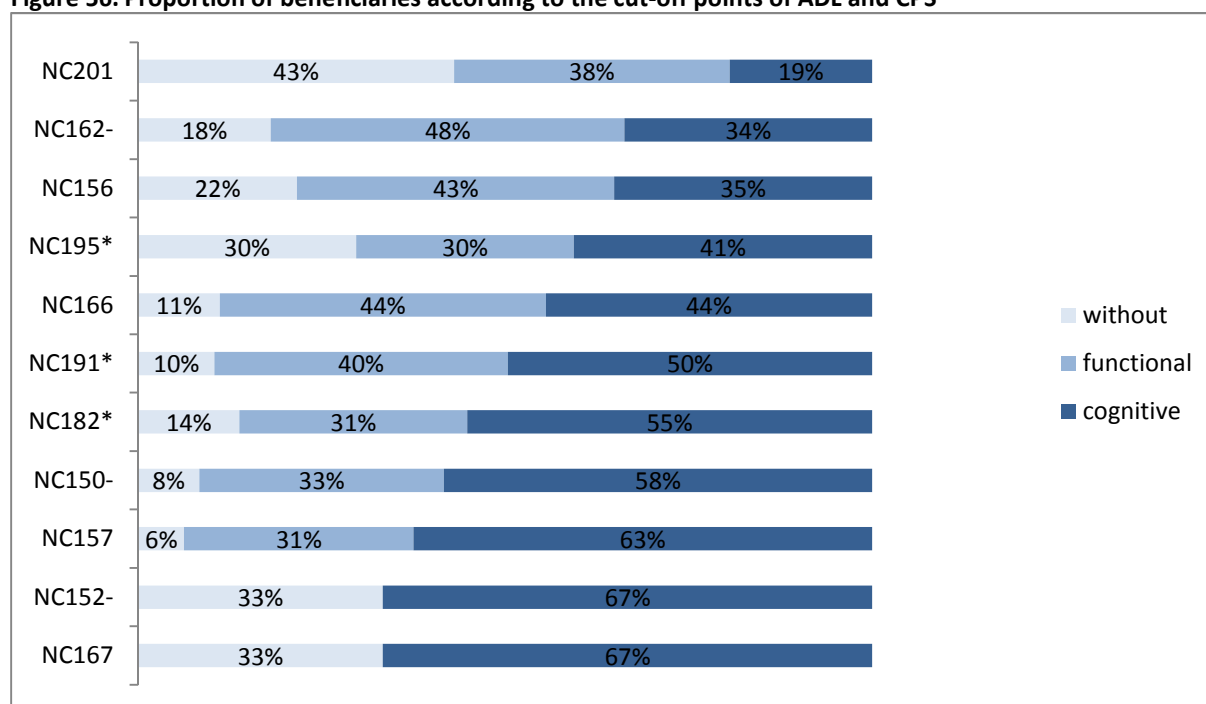
Figure 55. Total cost per beneficiary according to the mean level of impairment (ADL+IADL/8+CPS)



- ▲ Night care at home, visits of several beneficiaries per night
- Night hostel
- ✕ Night care at home, the whole night for one beneficiary

- 2 projects of night hostel are quiet similar with a majority of functional impaired persons (48% NC162 and 43% NC 156), and about 34% of beneficiaries with cognitive troubles. Whilst the 2 other projects of night hostel have more cognitive impaired beneficiaries (58% NC150 and 63% NC152).
- Night care projects providing visits to several beneficiaries per night have beneficiaries with different levels of impairment.
- There is no important difference of impairment between night care projects for one beneficiary per night.
- Two projects have a particular profile of beneficiaries, a high proportion of beneficiaries with significant functional and cognitive problems and beneficiaries without any significant ADL problems and cognitive problems (no ADL and IADL OR no ADL and IADL>cut-off point).

Figure 56. Proportion of beneficiaries according to the cut-off points of ADL and CPS



- Without=(ADL<3 and CPS<3), regardless the score on IADL
- Functional= (ADL >=3 and CPS <3), regardless the score on IADL
- Cognitive= CPS>=3, regardless the score on IADL and ADL scale

On the figure below, the total cost per beneficiary (size of circles) is various according to the functional or cognitive problems (functional and/or cognitive problems). There is no obvious particular graphic relation between the cost and the level of frailty per beneficiary. There are two projects without any beneficiary with only functional impairment (NC152 and NC167)

Figure 57. Proportion of beneficiaries according to the cut-off points of functional impairment (in abscises, functional impairment, proportion ADL ≥ 3 and/or IADL ≥ 3 and CPS < 3 in%) and CPS (in ordinates CPS ≥ 3 in%), and the total cost per beneficiary (size of circles)

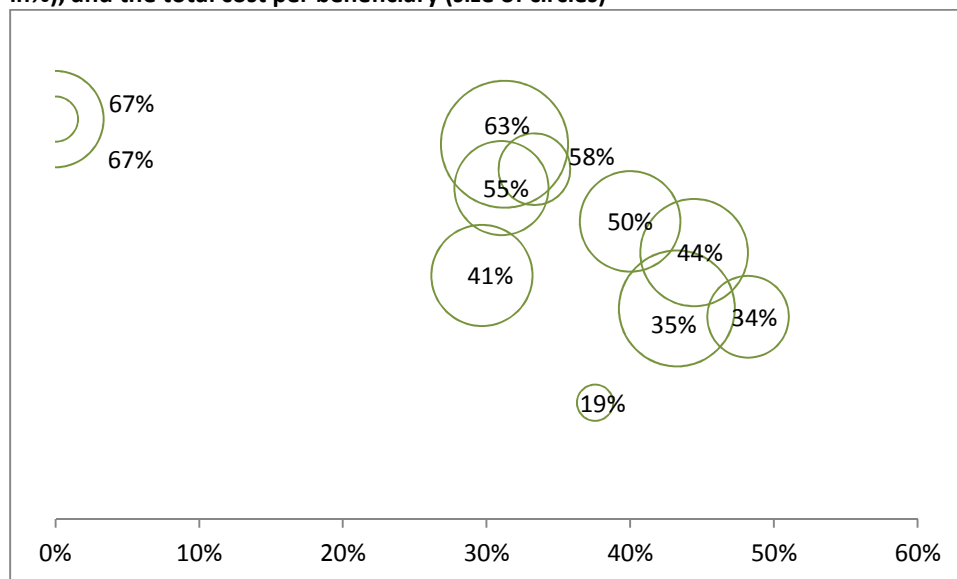


Table 15. Proportion of impaired beneficiaries and the cost per beneficiary

	Functional	Cognitive	Cost per beneficiary	Type of night care
NC150	33%	58%	3 137 €	Night hostel
NC152	0%	67%	1 232 €	
NC156	43%	35%	8 190 €	Night care at home
NC157	31%	63%	9 808 €	Night care at home
NC162	48%	34%	4 077 €	Night hostel
NC166	44%	44%	7 021 €	Night care at home
NC167	0%	67%	5 651 €	
NC182	31%	55%	5 386 €	Night care at home, the whole night
NC191	40%	50%	6 158 €	
NC195	30%	41%	6 237 €	Night care at home, the whole night
NC201	38%	19%	800 €	Night care at home

- The two projects of night hostel have the highest difference of the level of human resources used per beneficiary (17 and 46 beneficiaries per FTE). For the two other types of night care the range of beneficiaries per FTE is between 7 and 9 (except one outlier NC201 with 96 beneficiaries per FTE providing night care at home, several beneficiaries).
- The intensity of night care according to the number of hours of FTE per month dedicated to the caring function varies between projects: from 1.2 to 26.5 hours per month per beneficiaries, for project providing night care at home for several beneficiaries, from 2.6 to 15.6 hours for projects of night hostel and from 12.7 to 22 hours for night care at home, the whole night.
- The projects of night care at home, the whole night, have a relative low level of salary cost per FTE (between 35 080 to 45 746 euro per year). There is one outlier with 71 028 salary cost per year per FTE.

The total cost per beneficiary per year varies from:

- 1 232 to 8 190 euro for night hostel
- 7 021 to 9 808 euro for night care at home, several beneficiaries per night (with an outlier at 800 euro)
- 5 386 to 6 237 euro for night care at home, the whole night
- Half of the night care projects have a majority of beneficiaries with severe cognitive problems (between 50% to 67%).

3.4 Case management projects providing occupational therapy and/or physiotherapy

The analysis of the case management projects is performed by sub categories.

3.4.1 The quantity of the human resources used

The total number of FTE greatly differs from projects, even in the subcategory of projects. In the same category, there are both big projects and relatively small projects.

The biggest projects are projects of case management and residential services, with 3 projects with more than 10 FTE.

For case management providing occupational therapy and/or physiotherapy, there is an important gap in term of human resources used: between 2.75 and 9.4 total FTE.

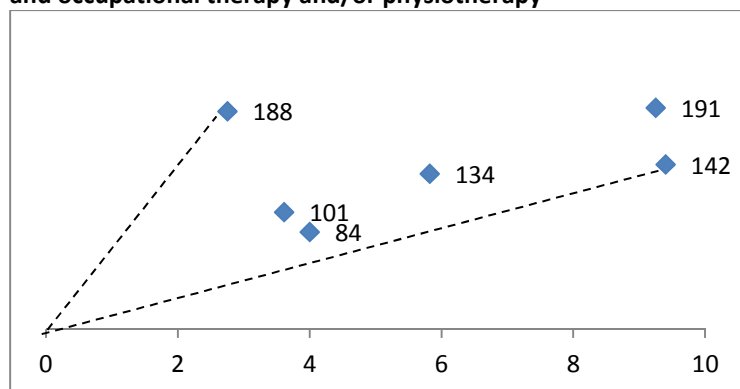
Table 16. Total FTE in projects providing case management

	Total FTE	% FTE in the subcategory
CMR179	1.97	2%
CasemanagementSolo	6.9	5%
CasemanResidential	81	5%
CMR202	4.7	6%
CMPSOT185	1.7	7%
CMOTPH197	2.7	8%
CMPSOT174	2.2	9%
CMOTPH184	3.6	10%
CMOTPH178	4	12%
CMPSOT183	3	12%
CMR196	10.1	12%
OT192	5.8	17%
CasemanPsychoOccupat	24.3	17%
CMR190	13.4	17%
CMR203	16.9	21%
CasemanOccupatPhysio	34.7	24%
CMS189	1.7	25%
CMOTPH200	9.2	27%
CMOTPH193	9.4	27%
CMPSOT199	8.2	34%
CMPSOT198	9.2	38%
CMR186	33.9	42%
CMS204	5.2	75%

Question: do bigger projects in term of FTE have more beneficiaries?

There is no relationship between the number of FTE and the number of beneficiaries. Some projects have a high number of beneficiaries and a relatively low number of FTE. Projects with a high number of FTE do not have a higher number of beneficiaries than other projects. The intensity of the intervention may explain the difference of the ratio FTE/total beneficiaries.

Figure 58. Total number of beneficiaries according to the total number of FTE per project of case management and occupational therapy and/or physiotherapy



The level of human resources according to the total number of beneficiaries varies from 15 to 68 beneficiaries per FTE.

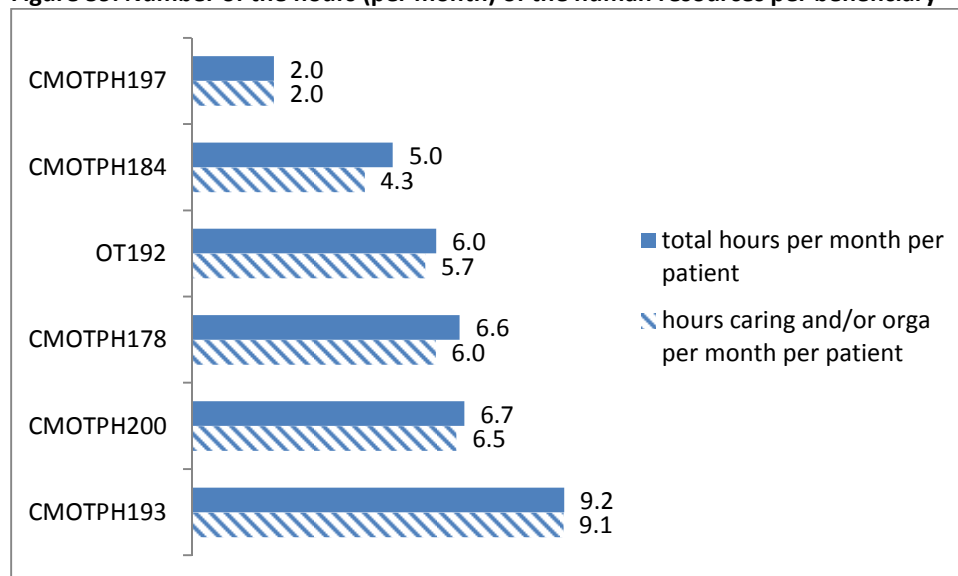
Table 17. Total FTE and beneficiaries in 2012

	Total beneficiaries	Total FTE	Beneficiaries/FTE
CMOTPH197	188	2.75	68
CMOTPH184	101	3.61	28
OT192	134	5.82	23
CMOTPH178	84	4	21
CMOTPH200	191	9.25	21
CMOTPH193	142	9.4	15

The level of hours available per beneficiary differs a lot between projects; the range is 2 hours to 9 hours per month. There are two outliers, the project CMOTPH197 with only 2 hours per month per beneficiary and CMOTPH193 with 9.2 hours.

Otherwise, the other projects are quiet similar in term of the level of human resources per beneficiary.

Figure 59. Number of the hours (per month) of the human resources per beneficiary

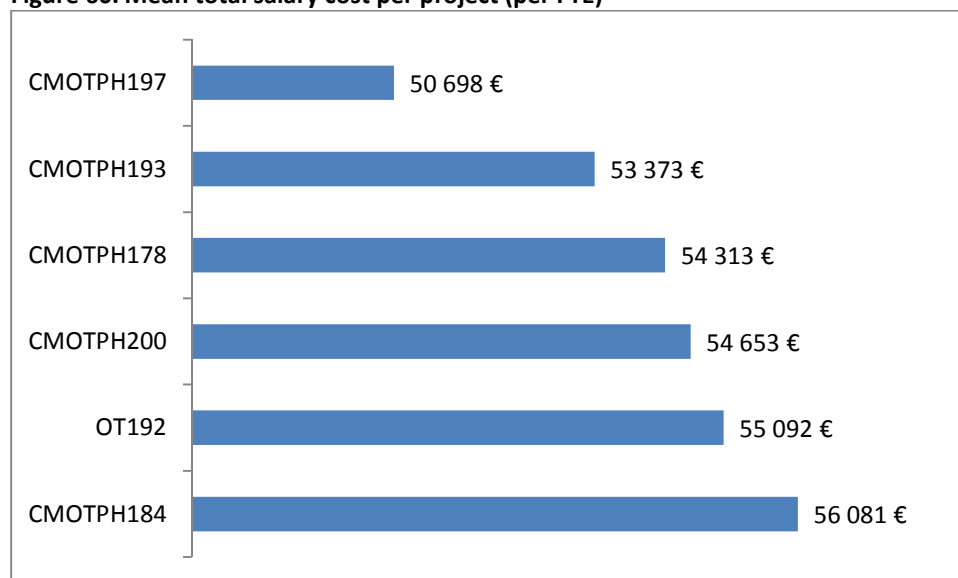


3.4.2 The costs analysis

The cost of human resources

The mean salary per FTE does not differ a lot between projects: 50 698 to 56 071 euro.

Figure 60. Mean total salary cost per project (per FTE)

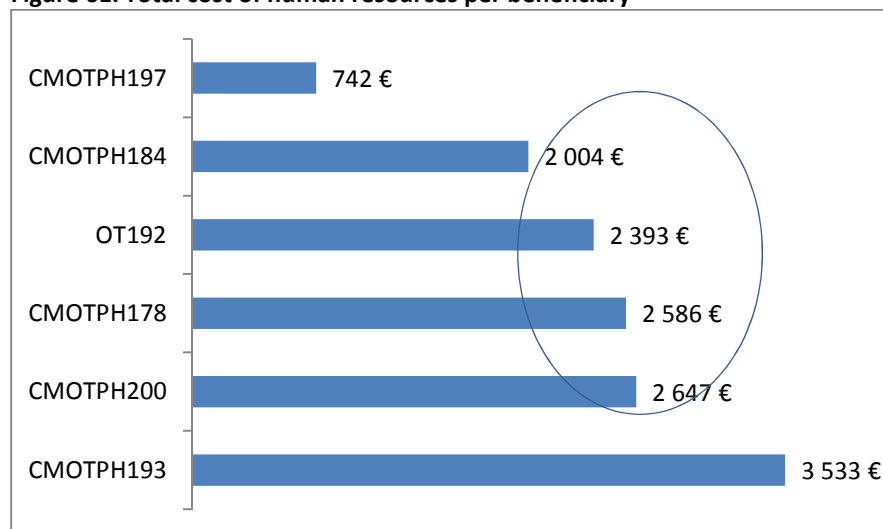


There are 2 outliers in terms of cost of human resources per beneficiary (as previously seen with total of hours per beneficiary [Figure 59](#)):

- One project with only 742 euro per beneficiary in 2012
- A project costing 3 533 euro per beneficiary

Other projects have a total cost of human resources between 2 004 to 2 647 euro per beneficiary.

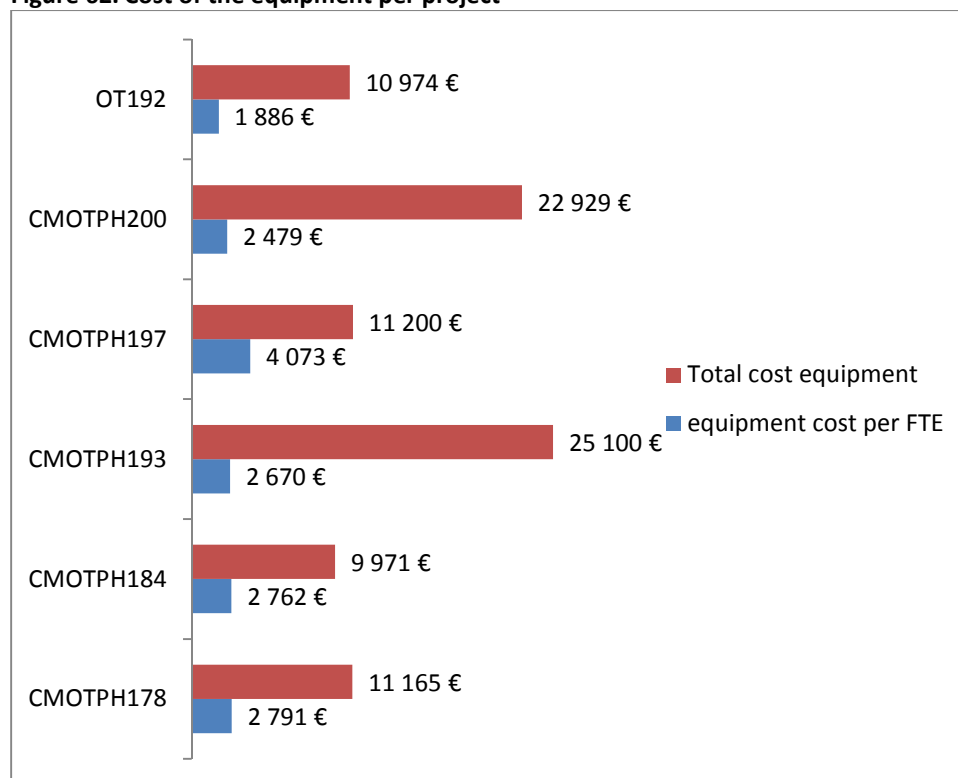
Figure 61. Total cost of human resources per beneficiary



The cost of equipment

The cost of equipment per FTE varies a lot, between 1 886 euro and 4 773. This variation might be explained by the specific activities of project. For small projects (only 2.75 FTE for the project with 4 773 euro), the fixed equipment might have a higher weight than for more important projects (e.g. web site, communication tools,...), representing incompressible expenses of equipment, not varying according to FTE.

Figure 62. Cost of the equipment per project



Cost for transportation per beneficiary

Table 18. Total costs in 2012

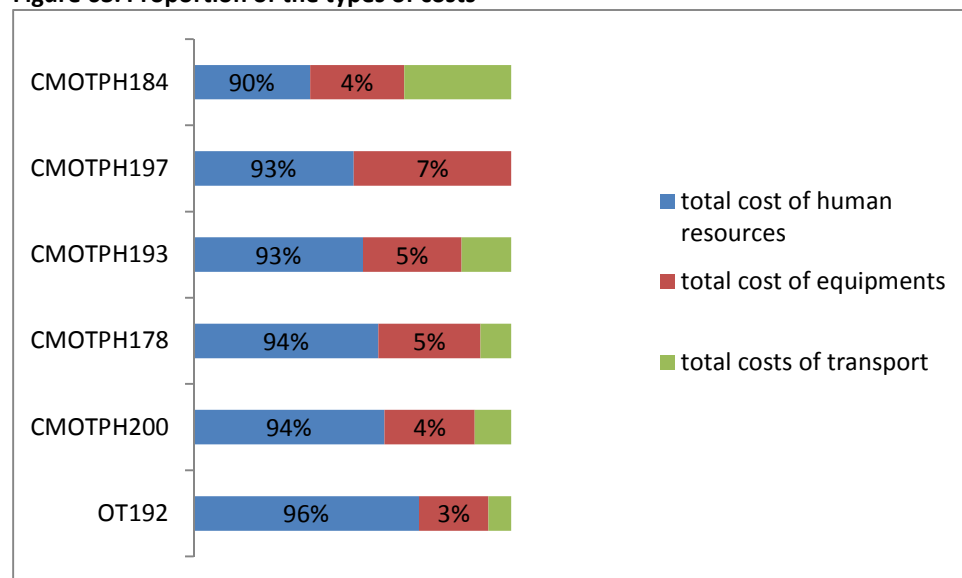
Total transportation costs

OT192	27	3 605 €
CMOTPH178	40	3 383 €
CMOTPH200	49	9 270 €
CMOTPH193	89	12 660 €
CMOTPH184	112	11 283 €

The total cost

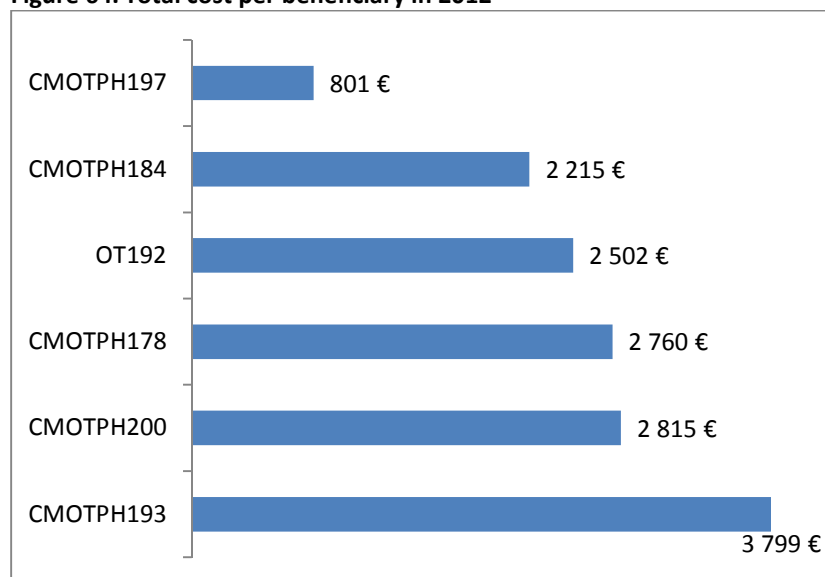
The proportion of the total human resources cost represent between 90% to 96% of the total cost.

Figure 63. Proportion of the types of costs



The total cost per beneficiary in 2012 is close to the total cost of the human resources per beneficiary. There is one outlier with 801 euro per beneficiary (CMOTPH197). Other projects have a higher cost (between 2 215 and 2 815 euro) and the outlier with the highest cost, 3 799 euro per beneficiary.

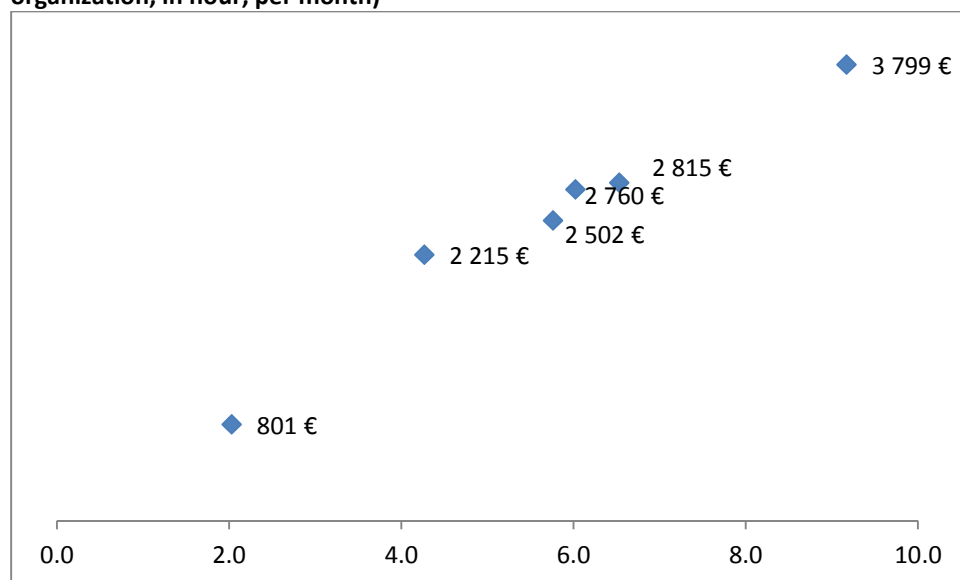
Figure 64. Total cost per beneficiary in 2012



3.4.3 Synthesis of the levels of resources used

The intervention proposed in the two projects outliers might not be comparable as the level of human resources differs a lot. In one project, there are 2 hours per beneficiaries while in the most costly project, there are almost 10 hours per beneficiary.

Figure 65. Total cost per beneficiary (in euro) according to the time per beneficiary (FTE dedicated to caring or organization, in hour, per month)



3.4.4 The relation between the beneficiary profile and the cost per beneficiary

The mean level of impairment does not differ at lot from project (7 – 10) and the cost per beneficiary seems to be independent from the level of impairment (vertical line).

Figure 66. Total cost per beneficiary according to the mean level of impairment (ADL+IADL/8+CPS)

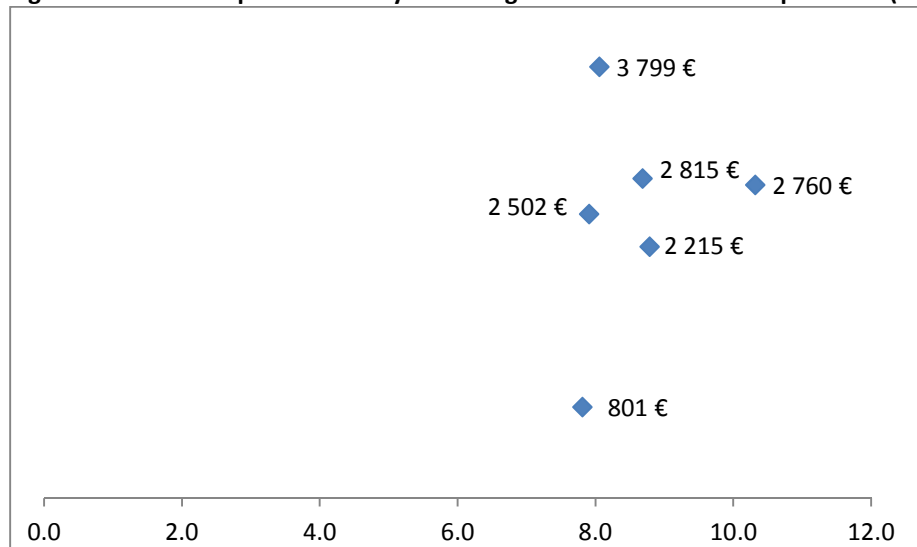


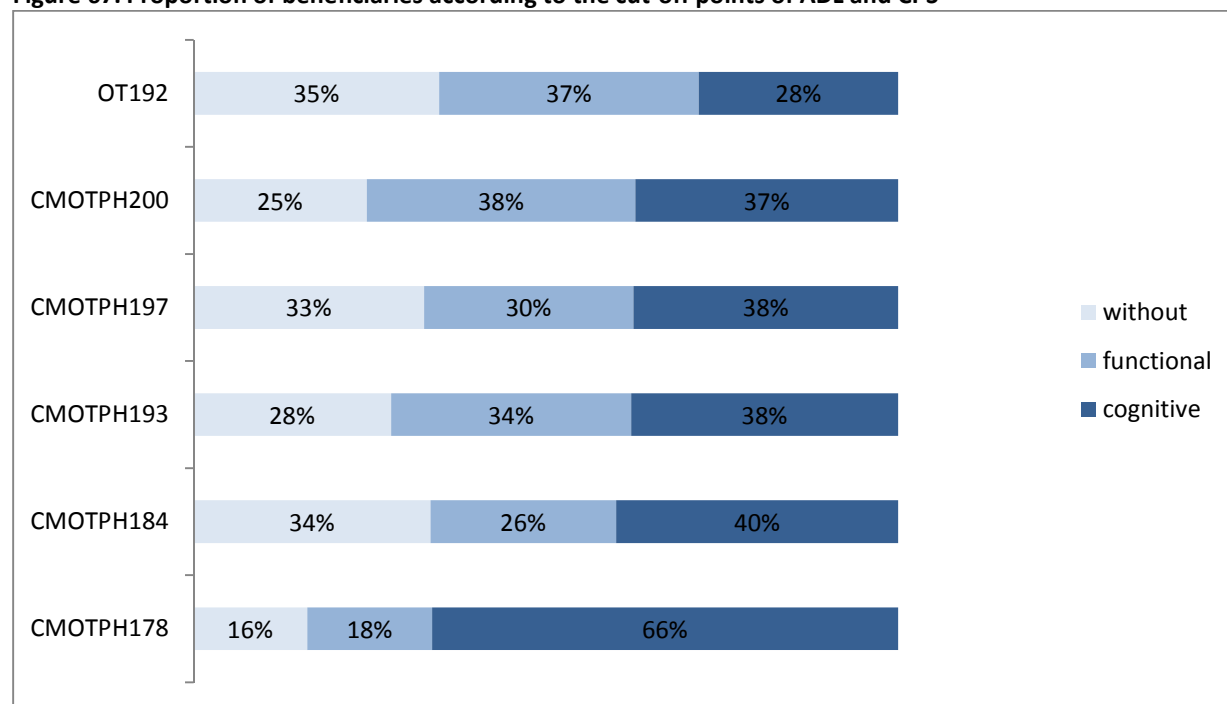
Table 19. Cost per beneficiary and the proportion of impaired beneficiary

	Proportion of beneficiary with functional impairment	Proportion of beneficiary with cognitive impairment	total cost per beneficiary
CMOTPH197	30%	38%	801 €
CMOTPH184	26%	40%	2 215 €
OT192	37%	28%	2 502 €
CMOTPH178	18%	66%	2 760 €
CMOTPH200	38%	37%	2 815 €
CMOTPH193	34%	38%	3 799 €

There is an outlier project caring a higher proportion of beneficiaries with severe cognitive impairment.

The other projects have in a relative equal proportion beneficiaries with only functional difficulties or severe cognitive problems.

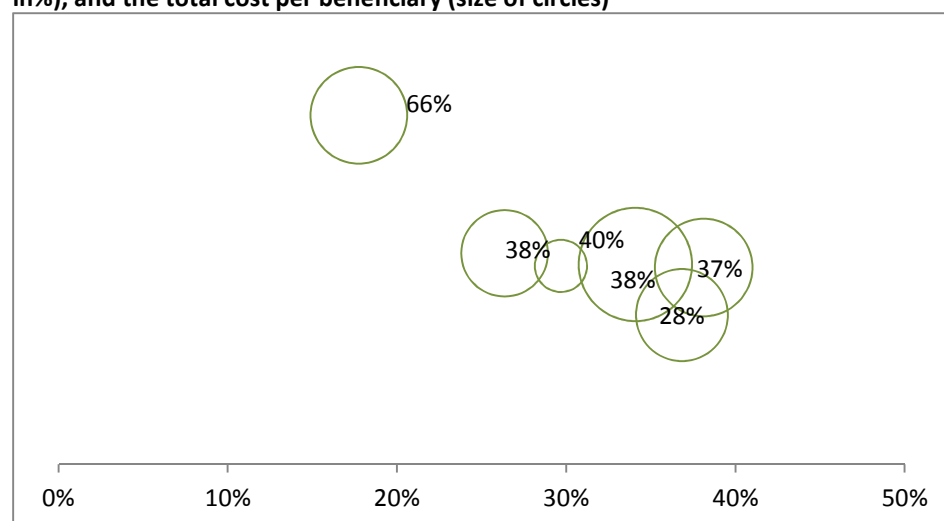
Figure 67. Proportion of beneficiaries according to the cut-off points of ADL and CPS



- Without=(ADL<3 and CPS<3), regardless the score on IADL
- Functional= (ADL >=3 and CPS <3), regardless the score on IADL
- Cognitive= CPS>=3, regardless the score on IADL and ADL scale

There is apparently no relation between the level and the type of impairment and the cost per beneficiary.

Figure 68. Proportion of beneficiaries according to the cut-off points of functional impairment (in abscises, functional impairment, proportion ADL >=3 and/or IADL>=24 and CPS<3 in%) and CPS (in ordinates CPS>= 3 in%), and the total cost per beneficiary (size of circles)



3.4.5 The relation between costs per beneficiary and the intervention

Questions: Are there any differences between interventions? Does this have an impact on the ratio FTE/beneficiaries? For the category of projects combining case management and other health care services, the differences of cost may be explained by the varying intensity of the types of services:

For the project CMOTPH197, the least costly project of the category, the number of beneficiaries per case manager might explain the difference in cost. Nevertheless, it might not be the only factor, as the total quantity of human resources per beneficiary is significantly lower than in other projects (also see [Figure 59](#)). There is a group of 3 projects, with about 40 beneficiaries per case manager.

The global intensity of the intervention according to the level of FTE in projects is also determined by the number of professionals providing occupational therapy and physiotherapy.

The project CMOTPH193 with the highest cost (3 799 euro) provide a more intense follow up than other projects of the category (there are no noteworthy differences in terms of impairment, see previous graph) as there is more major difference in the type of services provided.

The case management modalities do not explain the difference of the level of costs. All projects provide monitoring and the use of a care plan with feed-back to the GP.

The definition of the total of patients in 2012 may partly overestimate the total number of patients in 2012³. This bias explains for certain part the lowest number of hours of FTE per beneficiary than the number of hours planned. For the project OT192, the total number of hours of FTE per beneficiary is much higher than the total of hours planned. Therefore, there is an important part of the FTE employed not dedicated to the direct care of beneficiaries.

Table 20. Synthesis of the level of yearly cost per beneficiary and the case management modalities

ID project	Nb FOP/FTE CM	Cost/FOP/year	Number of total care hours/year planned (different sources*)	Number of total hours per year per beneficiary**	Case management modalities
CMOTPH197	67	€ 801	21	24	monitor & use of the care plan; provide systematic feedback to GP
CMOTPH184	41	€ 2.215	53	59	monitor & use of the care plan; provide systematic feedback to GP
OT192	24	€ 2.502	52	79.2	monitor & use of the care plan; provide systematic feedback to GP
CMOTPH178	30	€ 2.760	53	79	; monitor& use of the care plan; provide systematic feedback to GP
CMOTPH200	41	€ 2.815	Unknown	80.5	monitor & use of the care plan; provide systematic feedback to GP
CMOTPH193	38	€ 3.799	187	109	monitor & use of the care plan

*Submission file, conventions

**according to the number of beneficiaries in the P3 application in 2012 and the total number of FTE in the project

³ Any beneficiary with at least one day in 2012 is included in the calculation of the total number of beneficiaries

- The total number of beneficiaries per FTE varies from 15 to 38 for projects providing case management, occupational therapy and physiotherapy
- The total cost per beneficiary in 2012 varies from 2 215 to 2815 euro for 4/6 projects. There are two outliers with extreme level of cost: 800 euros to 3 799 euros.
- The level of impairment does not explain the level of the project costs per beneficiaries.

3.5 Case management projects providing occupational therapy and / or psychological support

3.5.1 The quantity of the human resources used

There are important differences according to number of FTE employed in the projects of case management providing OT and PS. Two projects represent 38% (CMPSOT198) and 34 % (CMPSOT199) of the total FTE of this category of projects.

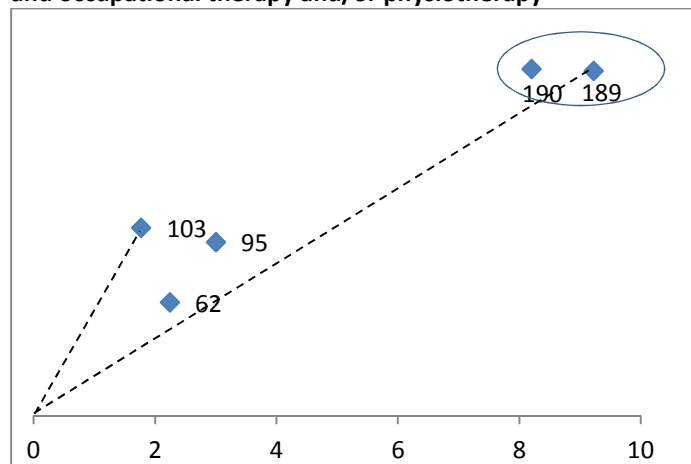
Table 21. Proportion of total FTE per project

	Proportion
CMPSOT185	7.%
CMPSOT174	9%
CMPSOT183	12%
CMPSOT199	34%
CMPSOT198	38%
	100%

Question: do projects with more FTE also have more beneficiaries?

Two projects seem to be similar in terms of the ratio FTE and number of beneficiaries: CMPSOT199, CMPSOT198. The three other projects are different.

Figure 69. Total number of beneficiaries according to the total number of FTE per project of case management and occupational therapy and/or physiotherapy



The total number of beneficiaries per FTE varies from 20 to 30 and one outlier with 58 beneficiaries per FTE.

Table 22. Total FTE and beneficiaries in 2012

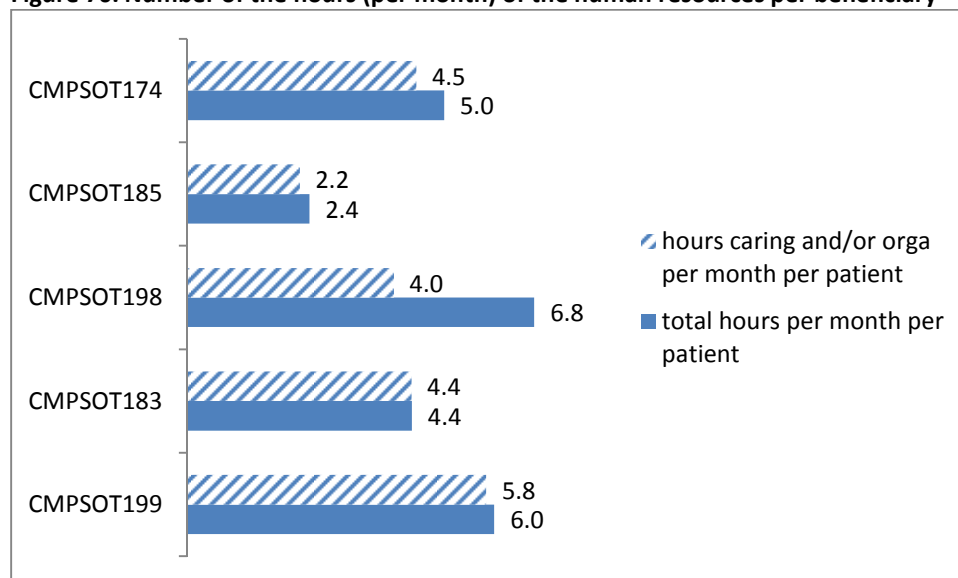
	Total FTE	Number of beneficiary	Beneficiaries/FTE
CMPSOT174	2.24	62	28
CMPSOT183	3	95	32
CMPSOT185	1.77	103	58
CMPSOT198	9.22	189	20
CMPSOT199	8.2	190	23

The number of hours per month per beneficiary varies from 2.4 to 6 hours per month.

The two similar projects CMPSOT199, CMPSOT198, in term of the ratio FTE/caseload, do not have the same proportion of FTE dedicated to caring. This difference may be explained by the type of services provided: project CMPSOT198 mainly organise meetings with the social network of the FOP.

There is one outlier with a low proportion of FTE dedicated to organization and / or caring with 59% for the projects CMPSOT198. The other projects do not differ a lot (differences the total FTE of caring and the total FTE varies from 89% to 100% of the total FTE).

Figure 70. Number of the hours (per month) of the human resources per beneficiary

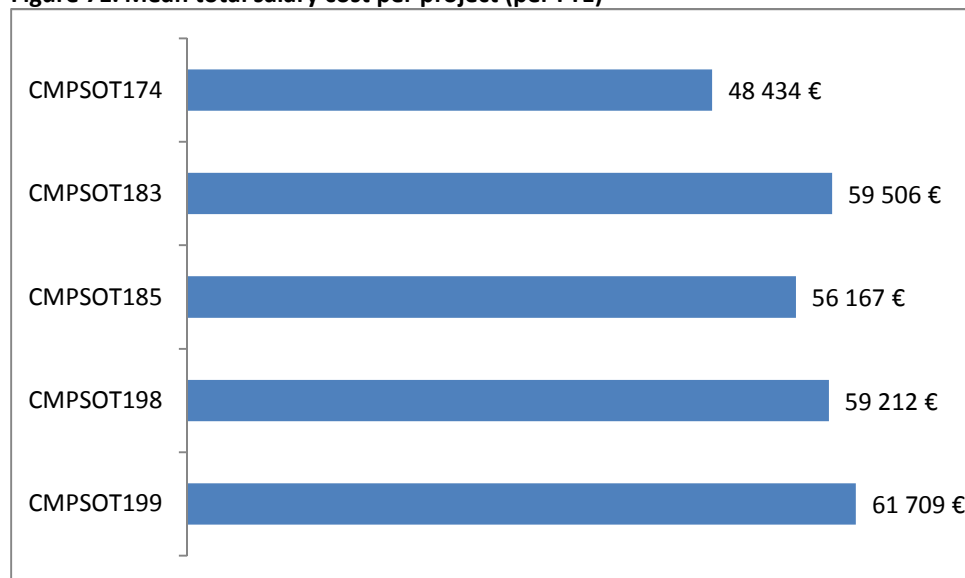


3.5.2 The costs analysis

The cost of human resources

There are important differences of the levels of salaries: from 48 434 euro to 61 709 euro. The project with 48 434 is an outlier as all other projects are closer to 61 709 euro.

Figure 71. Mean total salary cost per project (per FTE)



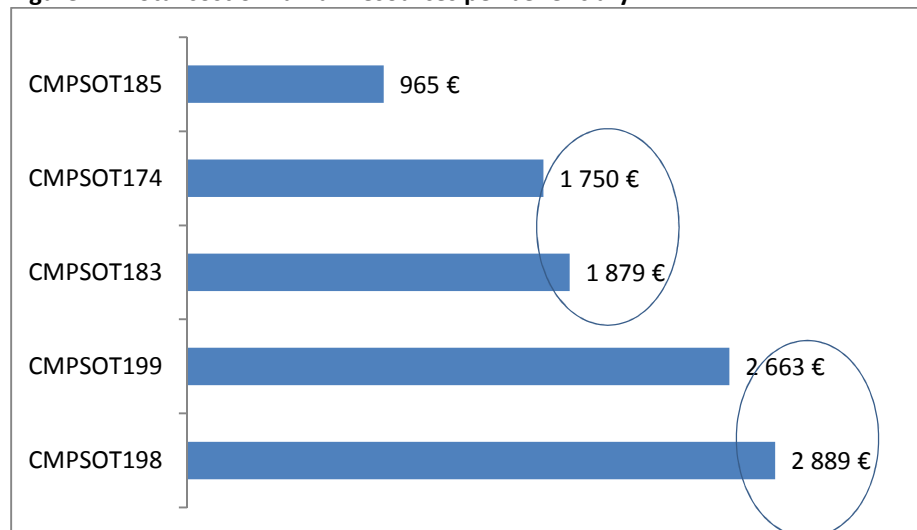
There are two main groups of projects according to the total cost of human resources per beneficiary:

- Two projects with a similar cost of human resources per beneficiary, (1 750 and 1 859 euro)
- Two projects with a higher HR cost per beneficiary (2 663 and 2 889 euro).

There is also an outlier with a lower total cost per beneficiary, 965 euro.

The interval is important (three times the lowest cost): 965 euro to 2 889 euro. The main explanation of the total cost per beneficiary is the ratio FTE/number of beneficiaries as the level of salary slightly differs between projects.

Figure 72. Total cost of human resources per beneficiary



The total of equipment per beneficiary varies from 2 237 to 2 503 euro, with an outlier (755 euro).

The cost of equipment

Figure 73. Cost of the equipment per project in 2012

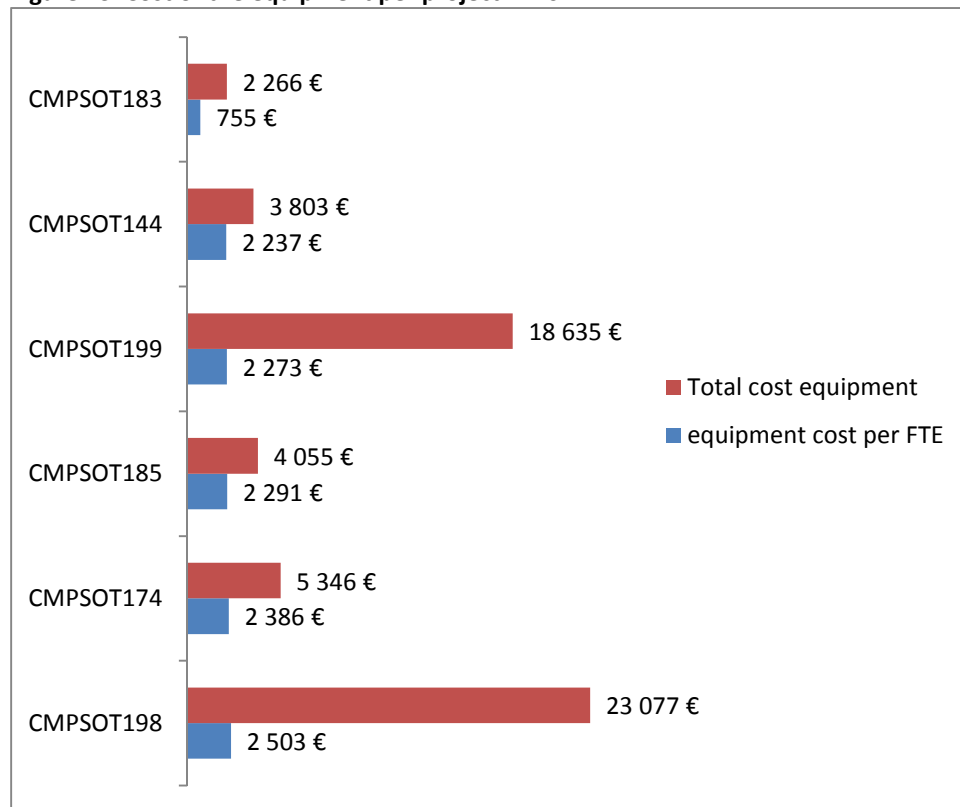
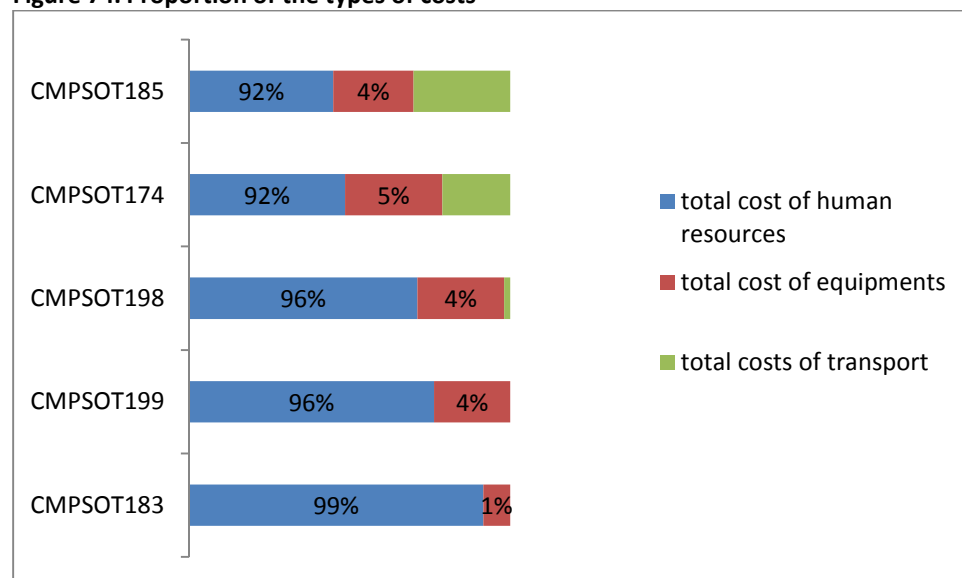


Table 23. Transportation cost in 2012

	Transport cost per beneficiary	Total transportation cost
CMPSOT198	9	1 630 €
CMPSOT185	48	4 900 €
CMPSOT174	60	3 727 €

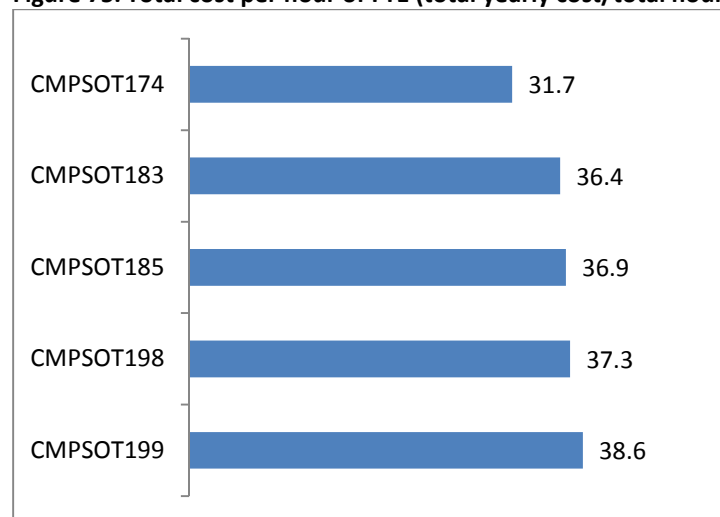
The human resources cost represents the majority of the total cost (92 % to 99%).

Figure 74. Proportion of the types of costs



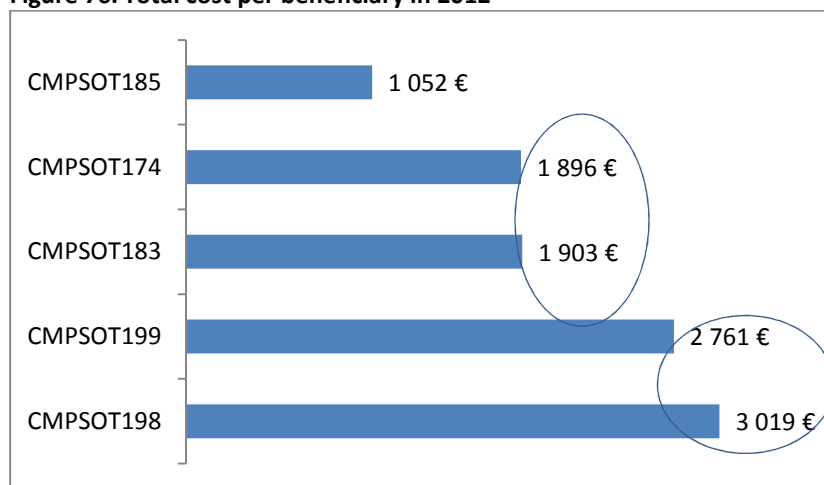
The cost per hour of FTE varies from 31,7 to 38.6 euro. The interval is relatively small compared to other types of projects (e.g. night care, from 21.4 to 44.4 euro).

Figure 75. Total cost per hour of FTE (total yearly cost/total hours of FTE per year)



The cost of equipment and transportation does not change the distribution of the human resources cost per beneficiary.

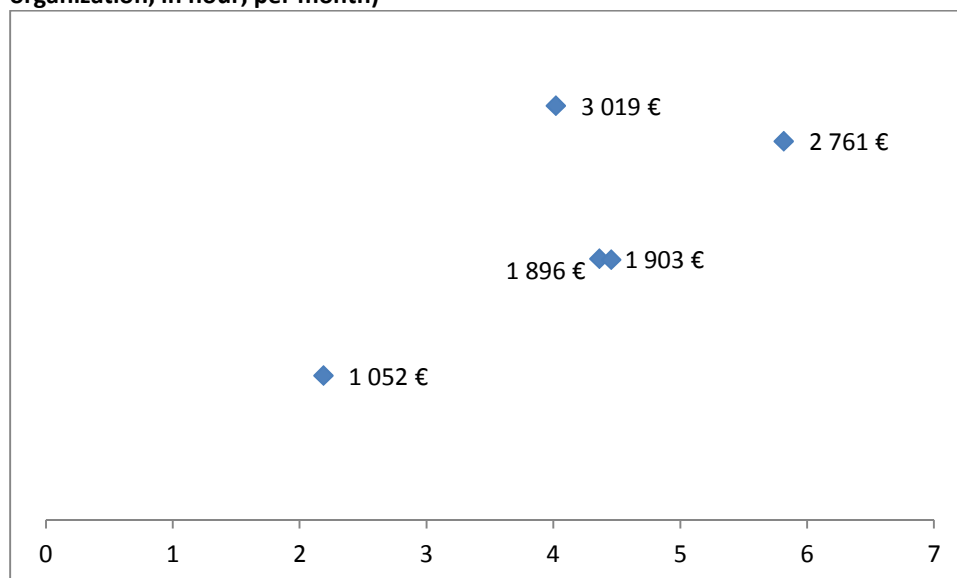
Figure 76. Total cost per beneficiary in 2012



3.5.3 Synthesis of the levels of resources used

There is one project outlier (CMPSOT198 with 3 019 euro per beneficiary). This project does not have an important proportion of FTE dedicated to caring or organization. For the other projects, the difference in costs is explained by the different level of FTE time per beneficiary for the caring or organization functions.

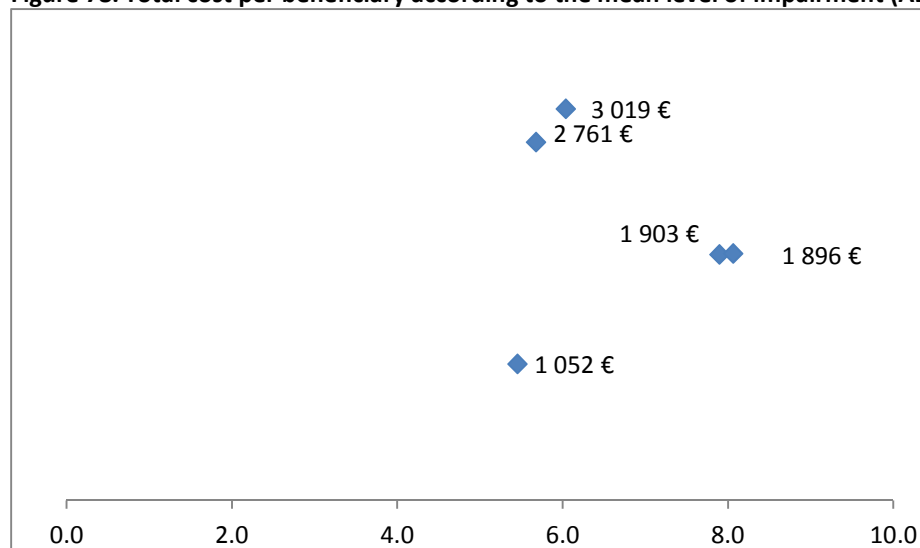
Figure 77. Total cost per beneficiary (in euro) according to the time per beneficiary (FTE dedicated to caring or organization, in hour, per month)



3.5.4 The relation between the beneficiary profile and the cost per beneficiary

There is no obvious relation between the mean level of impairment and the cost per beneficiary.

Figure 78. Total cost per beneficiary according to the mean level of impairment (ADL+IADL/8+CPS)

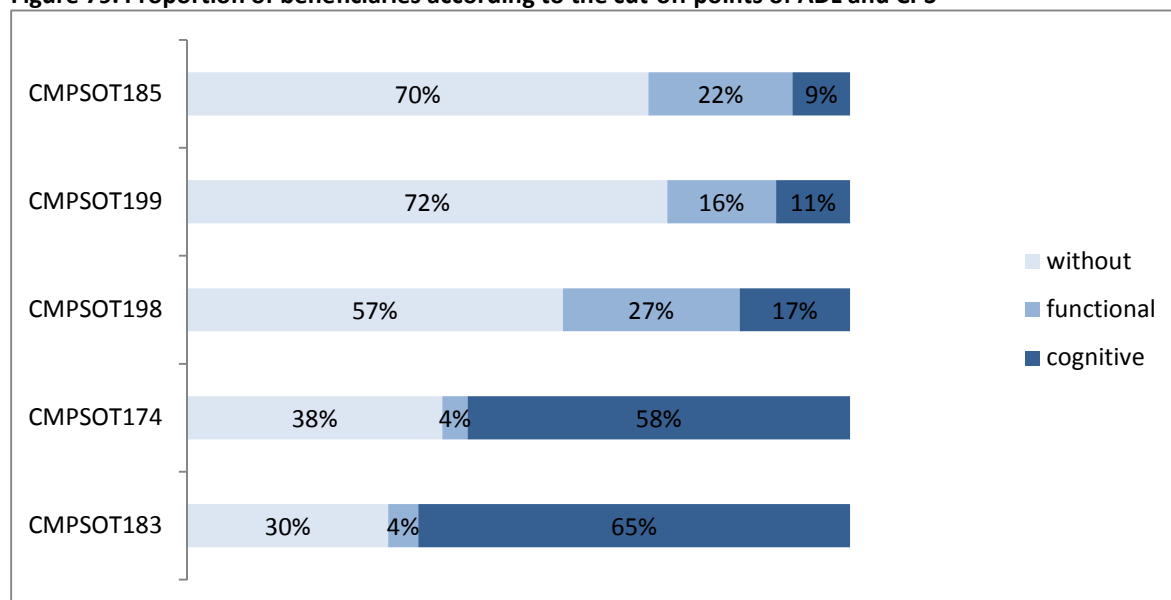


The project CMPSOT199 has an important proportion of beneficiaries without any significant ADL problems or cognitive troubles (72%) and this project is relatively costly compared to the others (2 761 euro). The other project with an important proportion of beneficiaries without any significant problems is the least costly of the category (1 052 euro per beneficiary) CMPSOT185.

The two projects with severe problems (functional and cognitive) have a relatively medium cost per beneficiary (CMPSOT174 with 1 896 euro per beneficiary and CMPSOT183 with 1 902 euro per beneficiaries).

The most costly project, CMPSOT198, has a low proportion of beneficiaries with severe problems (43% of beneficiaries) for a total cost of 3 019 euro per beneficiary.

Figure 79. Proportion of beneficiaries according to the cut-off points of ADL and CPS



- Without= (ADL<3 and CPS<3), regardless the score on IADL
- Functional= (ADL >=3 and CPS <3), regardless the score on IADL
- Cognitive= CPS>=3, regardless the score on IADL and ADL scale

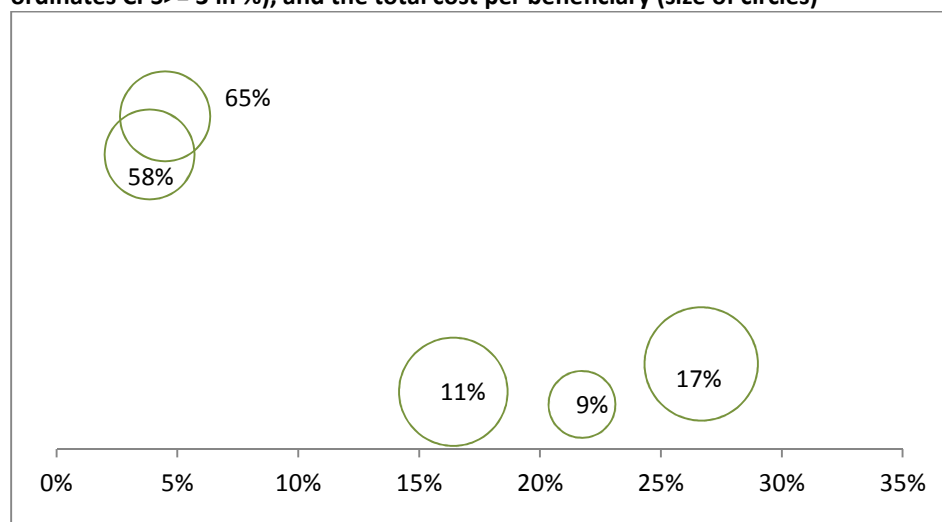
The levels of impairment according to cognitive and depressive status do not explain the differences of costs. Indeed, there are two similar projects, CMPSOT199 and CMPSOT185, with low means of impairment but with an important cost difference.

Table 24. Cost per beneficiary and mean level of cognitive score and DRS score per project

	Yearly cost per beneficiary	Mean Score Cognitive Performance Scale	Mean score Depression rating scale
CMPSOT185	1 052	0.8	2.9
CMPSOT174	1 896	2.4	2.6
CMPSOT183	1 902	2.9	4.5
CMPSOT199	2 761	0.7	2.3
CMPSOT198	3 019	1.6	4.0

The absence of link between the profile of beneficiaries and the cost per year is also confirmed in the graph below according to 3 dimensions.

Figure 80. Proportion of beneficiaries according to the cut-off points of functional impairment (in abscises, the functional impairment, proportion ADL ≥ 3 and/or IADL ≥ 24 and CPS < 3 in %) and cognitive impairment (in ordinates CPS ≥ 3 in %), and the total cost per beneficiary (size of circles)



3.5.5 The relation between costs per beneficiary and the intervention

Questions: Are there any differences in intervention? Does this have an impact on the ratio FTE/beneficiaries?

As for the projects of case management and occupational therapy and physiotherapy, the difference in the number of FOP per case manager might not be the only difference, the level of intensity of the other services provided, occupational therapy and psychological support is also an important factor determining the cost per beneficiary.

The intervention in the project CMPSOT185 significantly differs from the projects with higher costs as the quantity of the resources used is much lower than in other projects (two or three times more resources used in other projects).

The two projects with the highest cost per beneficiary:

- The project CMPSOT198 is a particular intervention aiming to provide the organization of meetings between health care (in particular psychologist and occupational therapist), non-health care professionals and informal caregivers. The high cost of the project may be partly

explained by the frequency, the number of participants and the financial retribution for some participants of the meetings.

- The project with the second highest cost per beneficiary, CMPSOT199 aims at providing individualized case management with a special focus on rehabilitation for beneficiaries living with a visual impairment. The population of this project is not very impaired, as is shown in [Figure 79](#) but according to the professional of the project, their intervention is much more relevant when there is no impairment yet, leaving room for stabilization and, if possible, functional recovery.

Lastly, the main hypothesis about the different levels of cost per beneficiary is that for same type of services, professionals plan different levels in quantity of resources and thus provide different intensities of services (total number of hours per beneficiaries per year varying between 28 to 81). Another important remark is that with similar resources (both in quantity and in term of skills mix), projects implement different types of interventions (e.g. CMPSOT198 vs other projects) or address specific individual problems (e.g. CMPSOT199 vs other projects).

Table 25. Synthesis of the level of yearly cost per beneficiary and the case management modalities

ID project	Nb FOP/FTE CM	Cost/FOP/year	Nb care hours/year planned*	Number of hours per year according to the number of beneficiaries**
CMPSOT185	80	€ 1.052	unknown	28
CMPSOT174	52	€ 1.896	unknown	60
CMPSOT183	33	€ 1.902	unknown	53
CMPSOT199	41	€ 2.761	80	72
CMPSOT198	20	€ 3.019	82.82	81

*Submission file, conventions

**according to the number of beneficiaries in the P3 application in 2012⁴ and the total number of FTE in the project

- The number of beneficiary per FTE varies from 20 to 58 for the project of case management projects providing occupational therapy and / or psychological support.
- The total numbers of hours of caring varies between 2.4 to 5.8 per beneficiaries per month.
- The mean total salary cost varies from 48 434 to 61 709 euro per FTE.
- The total cost per beneficiary in 2012 varies from 1 052 to 3 019 euro.
- The two projects with the highest proportion of beneficiaries with severe cognitive problems have a similar total cost per beneficiaries (1 896 1 902 euro).

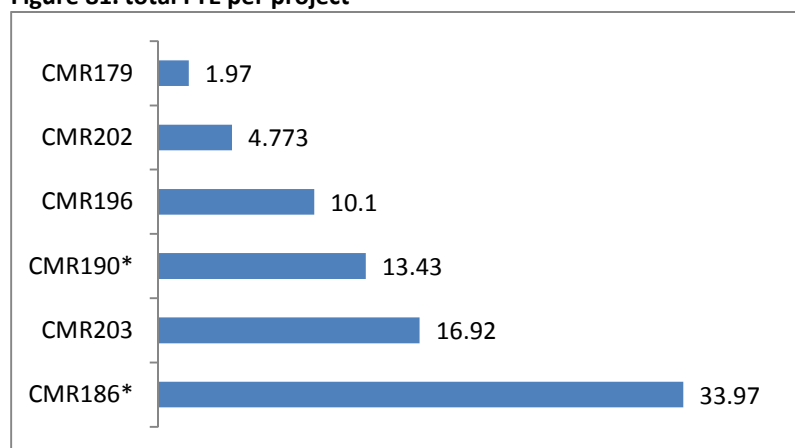
⁴ Any patient with at least 1 day in 2012 in the project.

3.6 Case management projects providing residential support

3.6.1 The quantity of the human resources used

There are important differences according to the number of FTE employed in this category of projects: from 1.97 FTE to 33.97 FTE. The project with 1.97 FTE only provides a short stay residential service while the other projects provide other services (physiotherapy, psychological support, nutrition or occupational therapy) except for two projects providing night care at home (*). The project CMR186 is not included in the analysis because the attribution of the resources used in the P3 setting was difficult to perform according to the project. Indeed, a part of the human resources are shared between P3 project and the organization of home care services.

Figure 81. total FTE per project

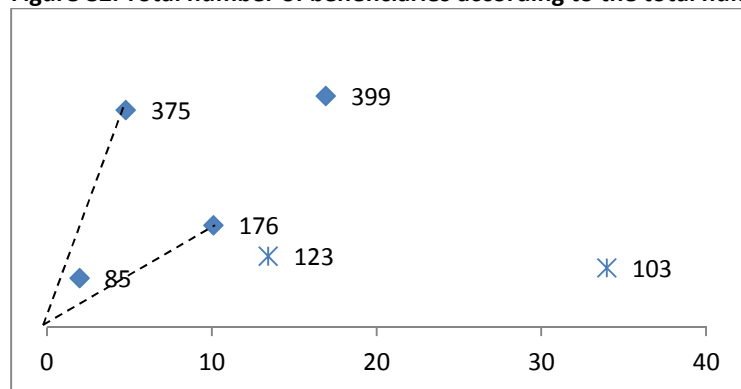


* projects providing case management and night care at home

Question: do projects with more FTE also have more beneficiaries?

The other 4 projects providing short stays are different according to the number of FTE and beneficiaries.

Figure 82. Total number of beneficiaries according to the total number of FTE per project



x Night care at home

◆ Short stay

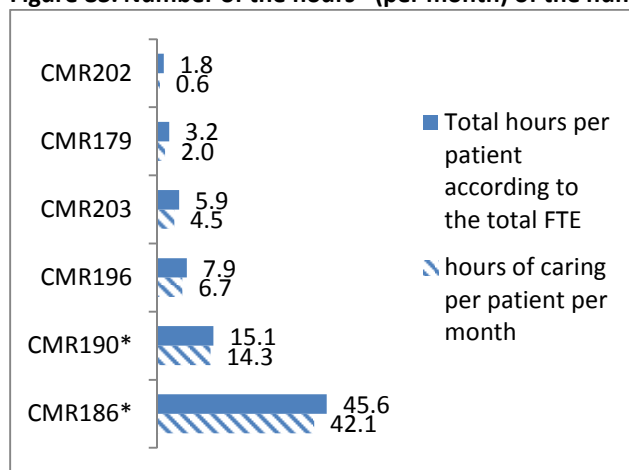
There are important differences of the total number of beneficiaries, varying from 17 to 79. The project for CMR190 night care at home provides while the other provide short stay in residential setting.

Table 26. Total FTE and beneficiaries in 2012

	Number of beneficiaries	Total FTE	beneficiaries/ FTE
CMR202	375	4.773	79
CMR179	85	1.97	43
CMR203	399	16.92	24
CMR196	176	10.1	17
CMR190	123	13.43	9

The number of hours per month per beneficiary varies from 1.8 to 15.1 hours per month. There is not much difference in the total hours of caring and/or organization functions. The level of resources between the projects differs a lot in this category of projects. The outlier with the lowest level of FTE time per beneficiary is actually a project of case management solo. This project does not directly provide health care services. This ratio is also similar to the level of human resources per beneficiary of the other projects of case management solo.

Figure 83. Number of the hours* (per month) of the human resources per beneficiary



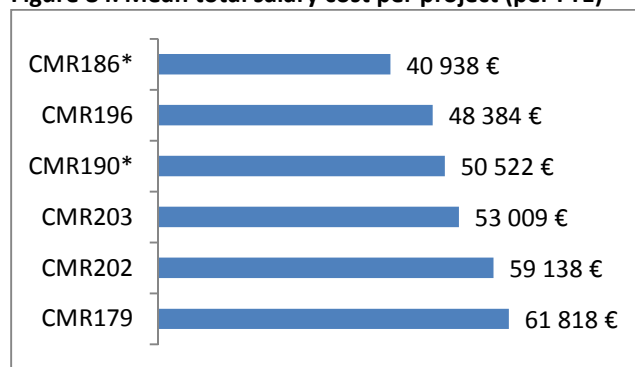
* Projects of night care at home

3.6.2 The costs analysis

The cost of human resources

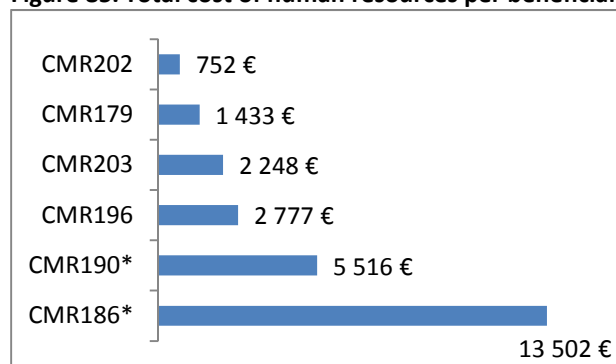
The differences in the mean salary cost are significant and vary between 40 938 euro and 61 818 euro. The main explanation for this difference is the professions employed, some projects mostly employ nursing assistants while some other employ a higher qualified staff. And for a small project with a low number of FTE, the high salary of management positions significantly influences the mean salary of projects.

Figure 84. Mean total salary cost per project (per FTE)



As a result of the different levels of the level of the human resources used per beneficiary, the total salary cost per beneficiary also differs a lot between projects (from 752 euro to 5 516 euro).

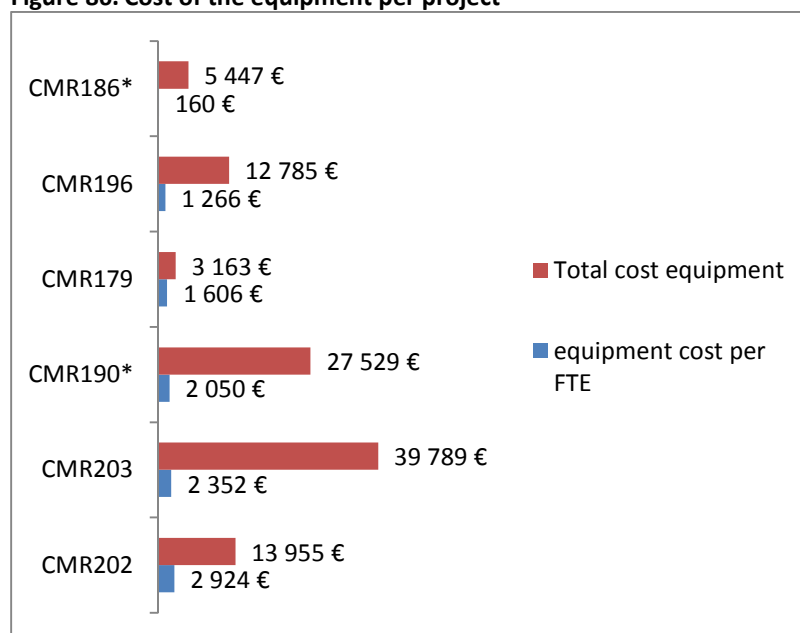
Figure 85. Total cost of human resources per beneficiary



The cost of equipment

The cost of the equipment used varies from 1 266 euro to 2 924 euro.

Figure 86. Cost of the equipment per project



Transport costs

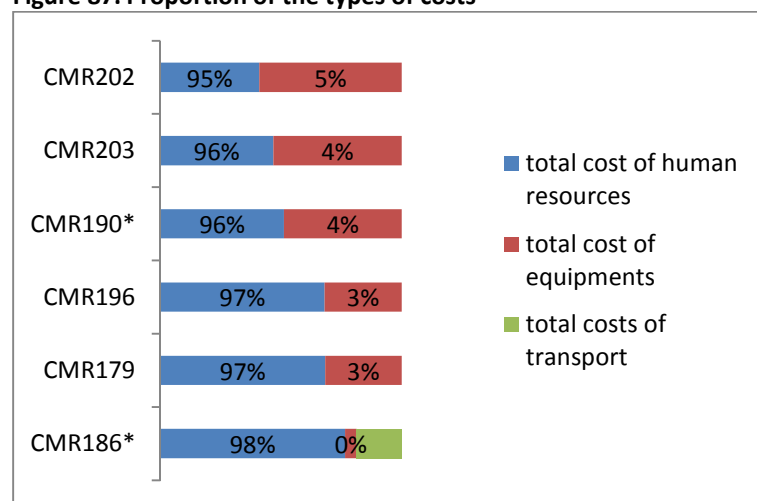
Table 27. Total transportation cost in 2012

	Transportation cost per beneficiary	Total transportation cost
CMR186	205	21 097 €

The total cost

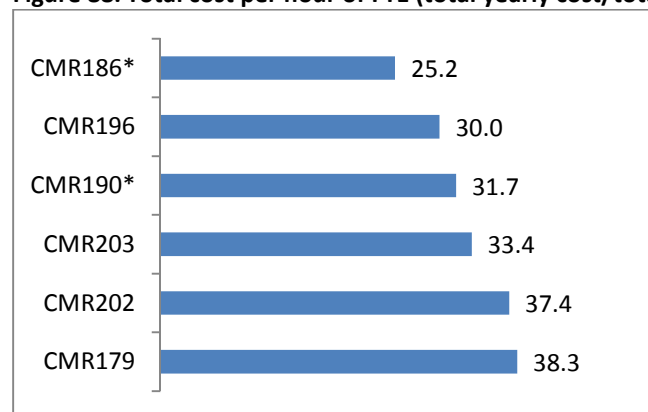
The proportion of the human resources cost is the highest, varying from 95% to 98% of the total costs. This is mainly due to the missing costs of accommodation and catering.

Figure 87. Proportion of the types of costs



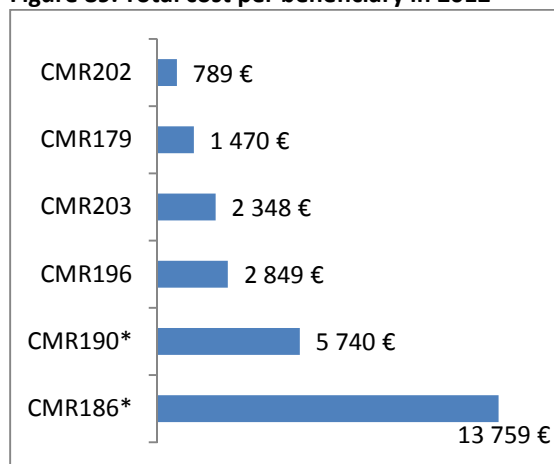
The range of the total cost per hour per FTE is rather small, from 30 euro up to 38.3. This indicator only reflects the cost of the structure (independent of the beneficiary activity). This cost is mainly influenced by the level of salary (according to the types of professions and the experience of employees).

Figure 88. Total cost per hour of FTE (total yearly cost/total hours of FTE per year)



As the human resources cost has a large impact on the total costs, the differences identified between projects according to the costs of salaries per beneficiary are similar to the differences regarding the total cost per beneficiary. There is one outlier with 789 euro with a comparable functioning to other projects of case management residential (intra organizational communication, decisional process) but collaborating with other organizations not financed through the P3 budget.

Figure 89. Total cost per beneficiary in 2012



3.6.3 Synthesis of the levels of resources used

The relation between costs per beneficiary and the intervention

In the category case management residential, there are different types of intervention:

- Projects CMR196, CMR203 and CMR179 provide rehab in a residential setting for a short period.
- Project CMR202, a project of case management solo.
- The projects CMR190, CMR186 mainly provide case management and night care at home. CMR186 is an outlier with the highest cost. The project CMR190 has a similar level of cost compared to the project of night care at home.

The number of hours per beneficiary is often different from the hours planned as the level of provisions (in hours estimated) before the start of the project are lower than the level calculated by using the real number of beneficiaries included during the year. Only the project of case management solo with residential services has planned the same number of beneficiaries according to their human resources.

The services provided may explain a part of the cost differences as the project CMR179 has a lower cost than the two other projects of rehab in a residential setting. Indeed, this project provides a shorter duration of intervention with fewer services (3 professionals involved while the two others have 4 professionals).

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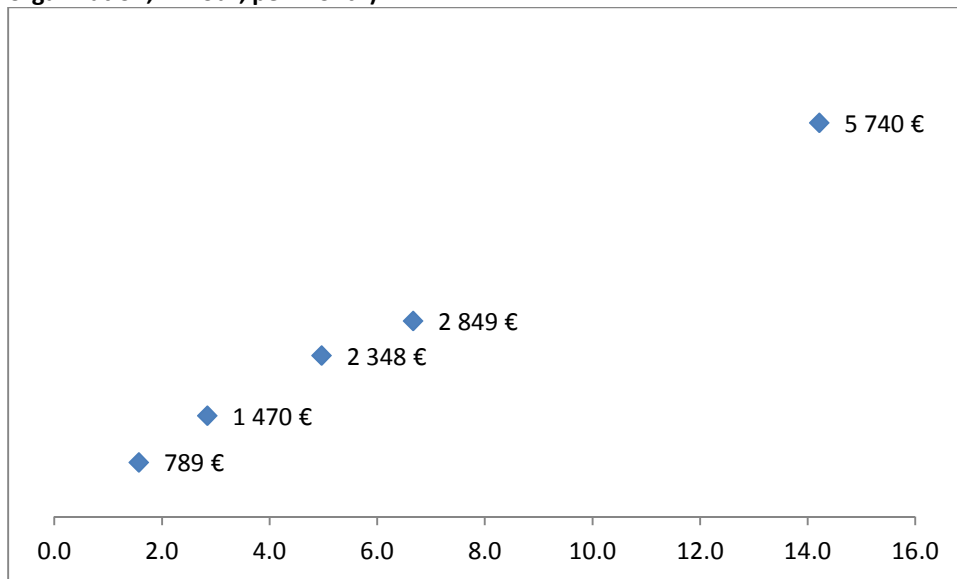
Table 28. Synthesis of the level of yearly cost per beneficiary and the case management modalities

	Number of FOP/FTE CM	Duration of the FOP in the project	Yearly cost per FOP	Number of care hours/year as planned	Number of total hours according to the number of patients ⁵	Intervention type	Caring professions
CMR202	70	Permanently	€ 789	18	21.6	Case management solo with residential services from partners organizations	
CMR179	8	14 days	€ 1.470	107	38	Rehab in residential setting	- Nurses or nursing assistants - Physiotherapist - Social worker
CMR203	5	28 days	€ 2.348	175	71		- Nurses or nursing assistants - Physiotherapist - Social worker - Occupational therapists
CMR196	4	31 days	€ 2.849	245	95		- Nurses or nursing assistants - Physiotherapist - Psychologist - Occupational therapists
CMR190	17	Permanently	€ 5.740	unknown	180	Night care at home	- Nurses or nursing assistants - Occupational therapist
CMR186	21	Permanently	€ 13.759	86,2	540		- Nurses or nursing assistants - Social worker - Occupational therapists

⁵ Any beneficiary with at least one day in 2012 is included in the calculation of the total number of beneficiaries

The relation between the time and the cost is very linear for project of casemanagement and residential services.

Figure 90. Total cost per beneficiary (in euro) according to the time per beneficiary (FTE dedicated to caring or organization, in hour, per month)

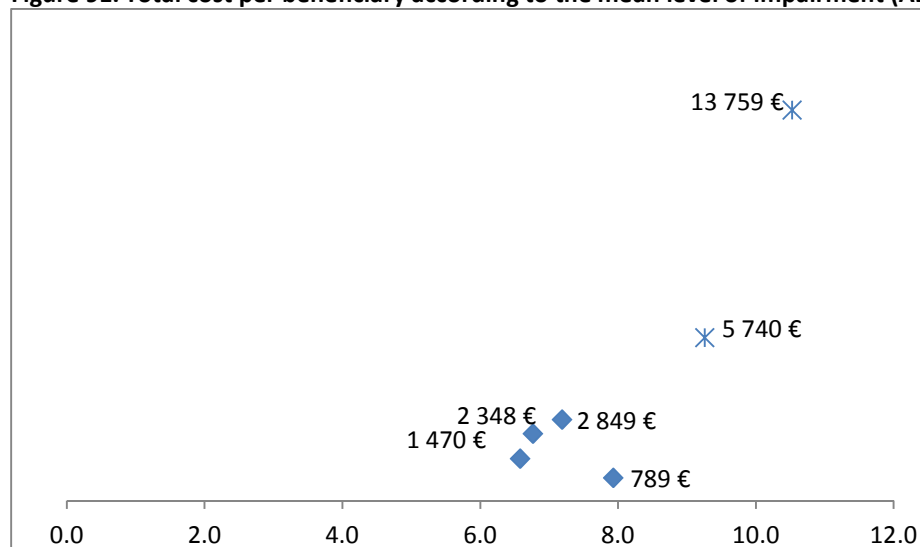


	Total cost per beneficiary	Number of hours per month per beneficiary
CMR196	2 849 €	6.7
CMR179	1 470 €	2.0
CMR203	2 348 €	4.5
CMR202	789 €	0.6
CMR190*	5 740 €	14.3
CMR186*	13 759 €	42.1

3.6.4 The relation between the beneficiary profile and the cost per beneficiary

The mean level of impairment (mean scores scales of ADL+IADL/8+CPS) is similar between projects (except those providing night care at home), between 6 and 8.

Figure 91. Total cost per beneficiary according to the mean level of impairment (ADL+IADL/8+CPS)

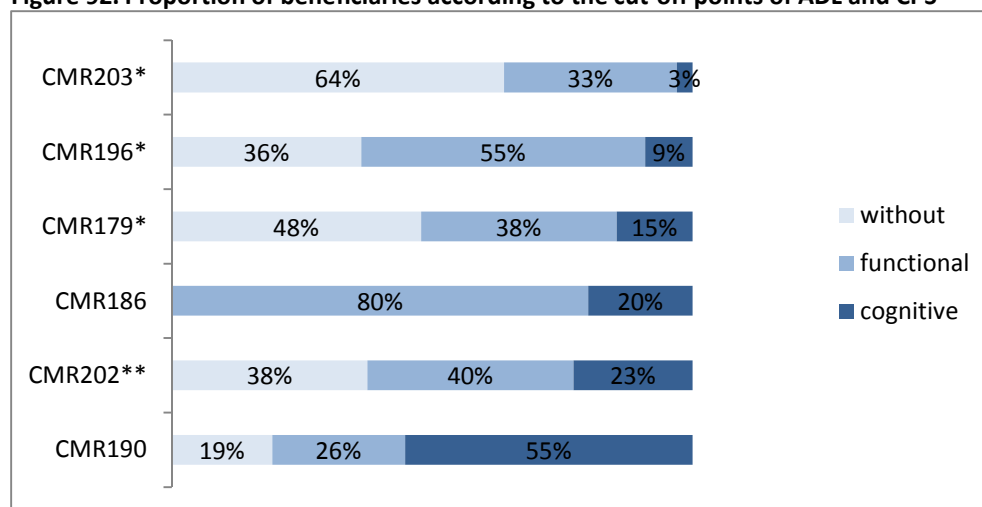


Among the projects offering rehabilitation in a residential setting, the project CMR203 does not have beneficiaries with a high level of frailty. 64% of the beneficiaries have no obvious impairment, or only on IADL scale, despite the relatively high cost per beneficiary (2 348 euro). The project the less costly of the category (1 470 euro) has more impaired beneficiaries with 52% with functional (ADL $\geq$ 3 and/or IADL $\geq$ 3) or cognitive impairment (CPS $\geq$ 3). Therefore, the objectives of these two projects might also differ as the population and the level of resources is different. The last project of the category CMR196 has beneficiary with mostly functional impairment (ADL $\geq$ 3 and/or IADL $\geq$ 3) and few cognitive impaired beneficiaries (9%).

The two projects of case management and night care at home have the most impaired beneficiaries (between 81% and 100% of the beneficiaries with functional or cognitive impairment).

The project of case management solo has a similar profile of beneficiaries compared to the project CMS189 (see [Figure 104](#)) which represents a balanced mix of the three categories.

Figure 92. Proportion of beneficiaries according to the cut-off points of ADL and CPS



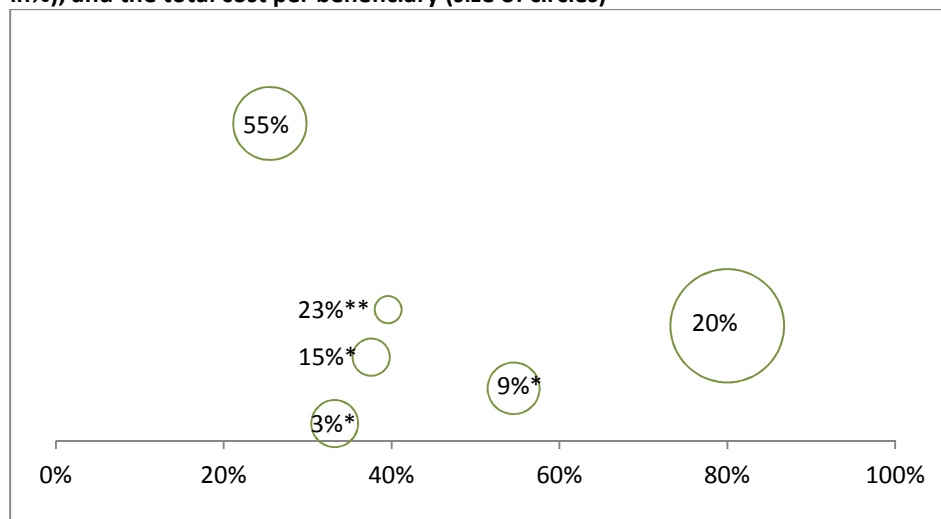
- Without=(ADL<3 and CPS<3), regardless the score on IADL
- Functional=(ADL $\geq$ 3 and CPS <3), regardless the score on IADL

- Cognitive= CPS $\geq$ 3, regardless the score on IADL and ADL scale

*Projects of rehab in a residential setting

** Project of case management solo

Figure 93. Proportion of beneficiaries according to the cut-off points of functional impairment (in abscises, functional impairment, proportion ADL $\geq$ 3 and/or IADL $\geq$ 3 and CPS $<$ 3 in%) and CPS (in ordinates CPS $\geq$ 3 in%), and the total cost per beneficiary (size of circles)



**Case management solo project

*Rehab in residential setting

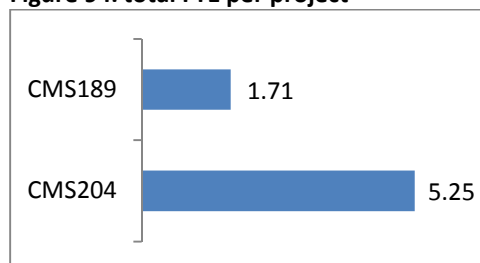
- The projects of case management providing residential services have important differences in term of number of beneficiaries per FTE (between 17 to 79).
- The number of hours of FTE per month per beneficiaries also significantly varies (between 1.8 to 14.2).
- The mean salary cost per FTE varies from 40 938 to 61 818 euro.
- The total cost per beneficiary for projects providing case management and residential services varies between 1 470 to 2 896 euro.
- One project providing case management and night care at home has a similar level of cost than the projects providing only night care at home and similar beneficiary profile (a majority with severe cognitive problems).

3.7 Case management projects solo

3.7.1 The quantity of the human resources used

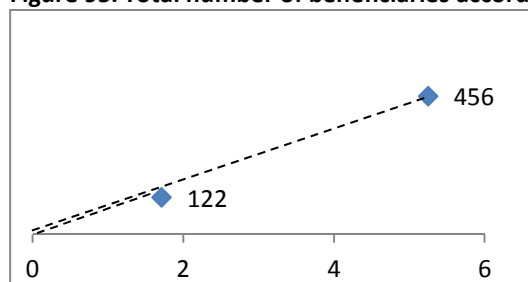
Two projects of case management solo have filled out the yearly questionnaire (of 4 projects).

Figure 94. total FTE per project



Question: do bigger projects in term of FTE have more beneficiaries?

Figure 95. Total number of beneficiaries according to the total number of FTE per project



The total number of beneficiaries in 2012 is similar, 71 and 87 per FTE.

Table 29. Total FTE and beneficiaries in 2012

	Number of beneficiaries	Total FTE	beneficiaries/ FTE
CMS189	122	1.71	71
CMS204	456	5.25	87

The level of hours of caring are also similar.

Figure 96. Number of the hours* (per month) of the human resources per beneficiary

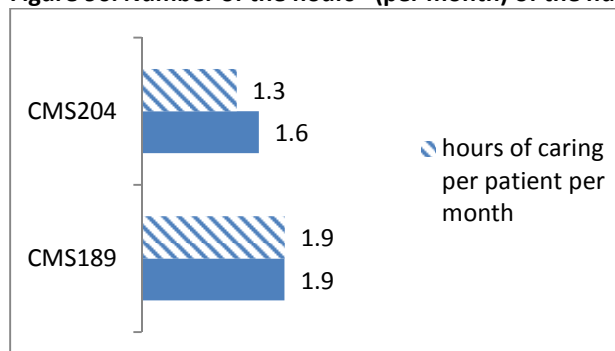


Table 30. Professions and FTE dedicated to caring function per project

CMS189	1.71
Hospital nurse(A2)	0.24
Bachelor in nursing (A1)	0.47
Social Graduate	1
CMS204	4.25
Occupational Therapist	0.5
Bachelor in nursing (A1)	0.5
Secretary	0.75
Educator	1.25
Social Assistant	1.25

3.7.2 The costs analysis

The cost of human resources

Figure 97. Mean total salary cost per project (per FTE)

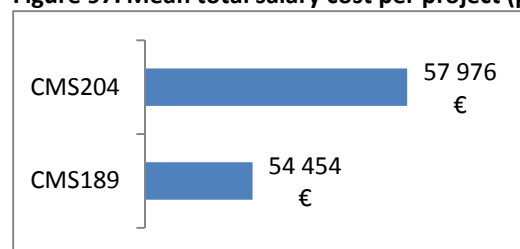
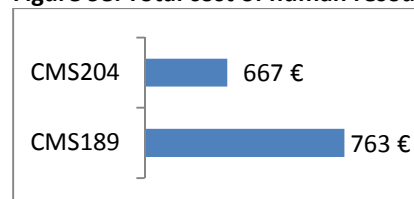


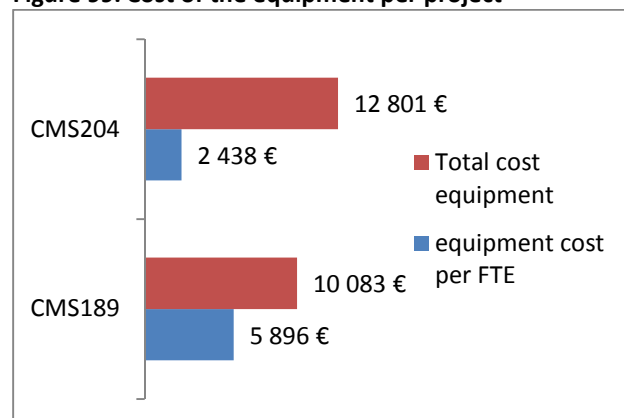
Figure 98. Total cost of human resources per beneficiary



The cost of equipment

There is an important difference between the two projects, 2 438 for CMS204 and 5 896 for CM189 (high cost of telephony).

Figure 99. Cost of the equipment per project



Cost of transportation

No costs of transportation have been mentioned.

The cost per hour of FTE is relatively high, compared to the cost of the projects providing case management and residential services (between 25,2 to 38.3). This is mainly due to the level of qualification of the professionals and the high level of the salaries.

Figure 100. Total cost per hour of FTE (total yearly cost/total hours of FTE per year)

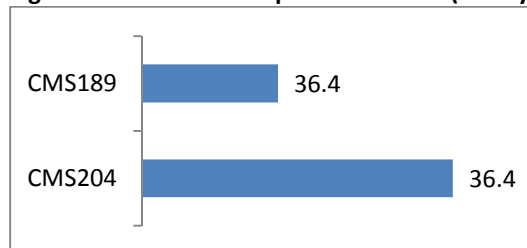
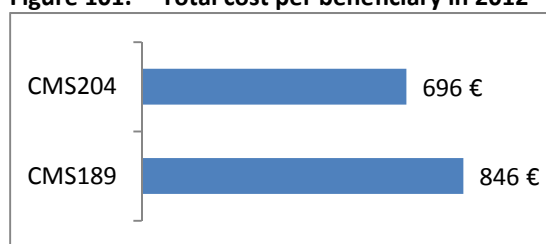


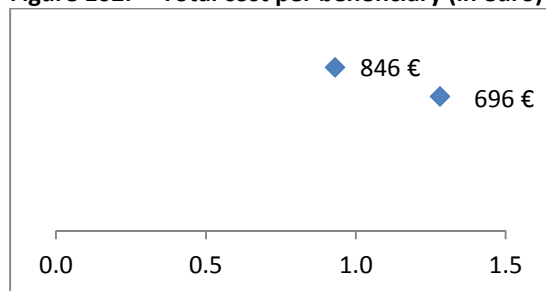
Figure 101. Total cost per beneficiary in 2012



3.7.3 Synthesis of the levels of resources used

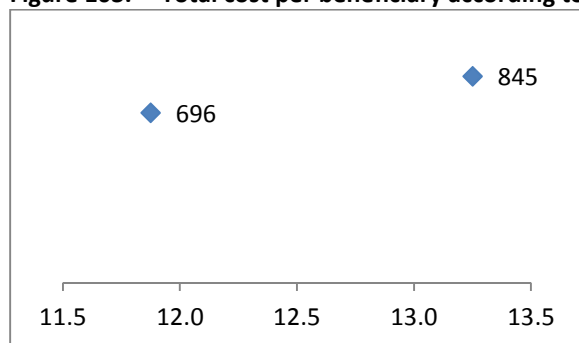
The project CMS204 is slightly less costly than the project CMS189 for a higher level of hours available. Nevertheless, the difference is not important and these two projects should be compared to other projects of case management providing other services.

Figure 102. Total cost per beneficiary (in euro) according to the time per beneficiary (in hour, per month)



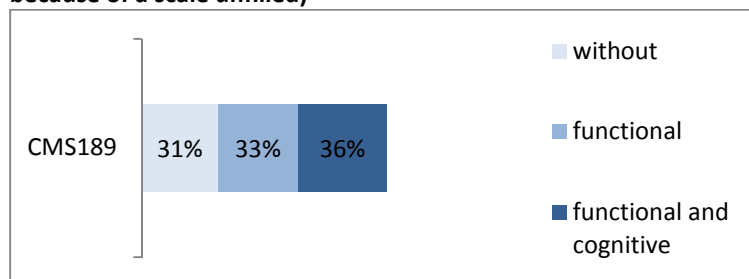
There is not much difference between the two projects of case management. The mean level of the combined score of impairment is high in both projects.

Figure 103. Total cost per beneficiary according to the mean level of impairment (ADL+IADL/8 + CPS)



3.7.4 The relation between costs per beneficiary and the intervention

Figure 104. Proportion of beneficiaries according to the cut-off points ADL and CPS (1 project is missing because of a scale unfilled)



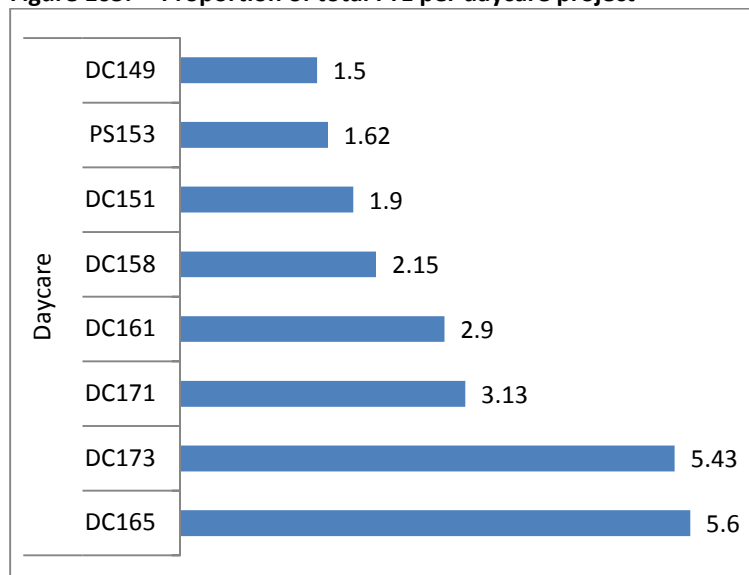
- The two projects of case management solo have similar number of beneficiaries per FTE (71 and 87).
- The mean salary cost per FTE is also similar (54 454 and 57 976 euro).
- The total cost per beneficiary is similar (696 and 846 euro).

3.8 Daycare projects

3.8.1 The quantity of the human resources used

There are two important projects of daycare with about 5 FTE while all other daycare projects have between 1.5 and 3.13 total FTE.

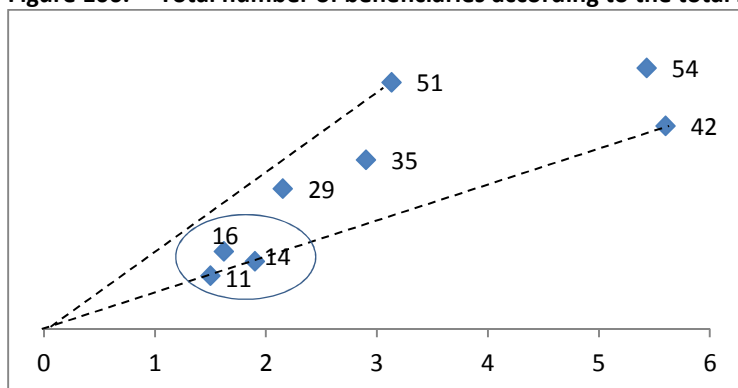
Figure 105. Proportion of total FTE per daycare project



Question: do projects with more FTE also have more beneficiaries?

- The daycare projects with the smallest number of FTE have a similar number of beneficiaries (between 11 and 16)
- The proportion of FTE per beneficiary differs: one project (DC171) with only 3.13 total FTE has 51 beneficiaries while another one (DC173) has 54 beneficiaries for 5.43 total FTE.

Figure 106. Total number of beneficiaries according to the total number of FTE per project

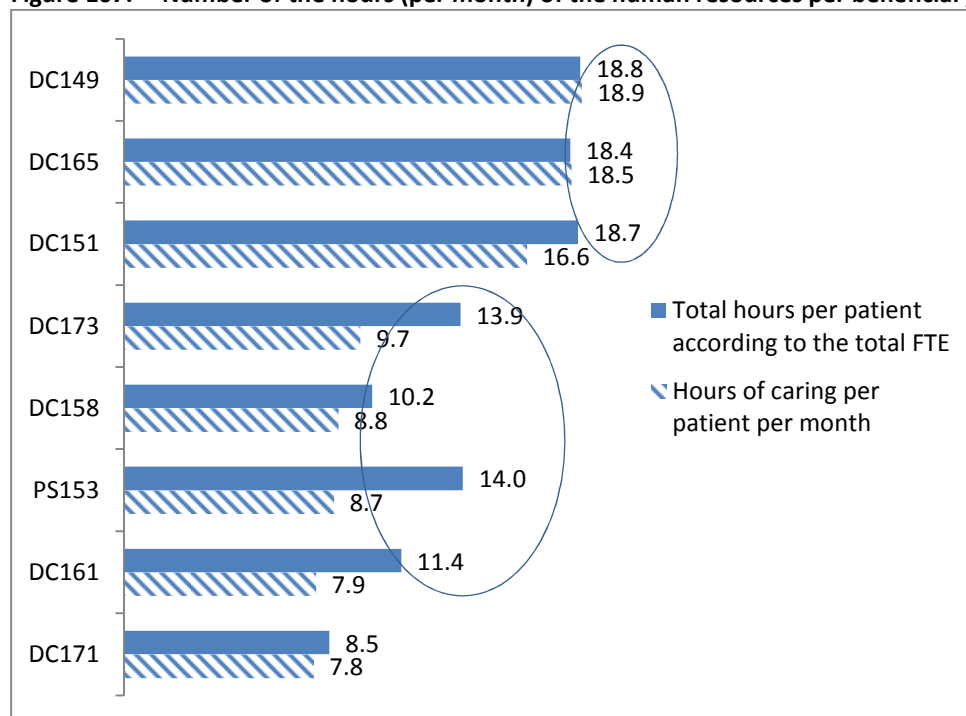


	Number of beneficiaries	Total FTE	beneficiaries/FTE
DC149	11	1.5	7
PS153	16	1.62	10
DC151	14	1.9	7
DC158	29	2.15	13
DC161	35	2.9	12
DC171	51	3.13	16
DC173	54	5.43	10
DC165	42	5.6	8

The total number of hours (per month) is variable among different groups of projects:

- There is a group of projects with a relatively high number of hours per month per beneficiary, about 18 hours. Moreover, there is no link with the number of FTE, DC149 is the smallest project with 1.5 FTE, and DC165 is the biggest project (5.6 FTE).
- The other projects provide between 11.4 and 13.9 hours per month, with an outlier project that gives 8.5 hour of care per month (DC171). Nevertheless, the total hours available for caring is similar (between 7.9 and 9.7).

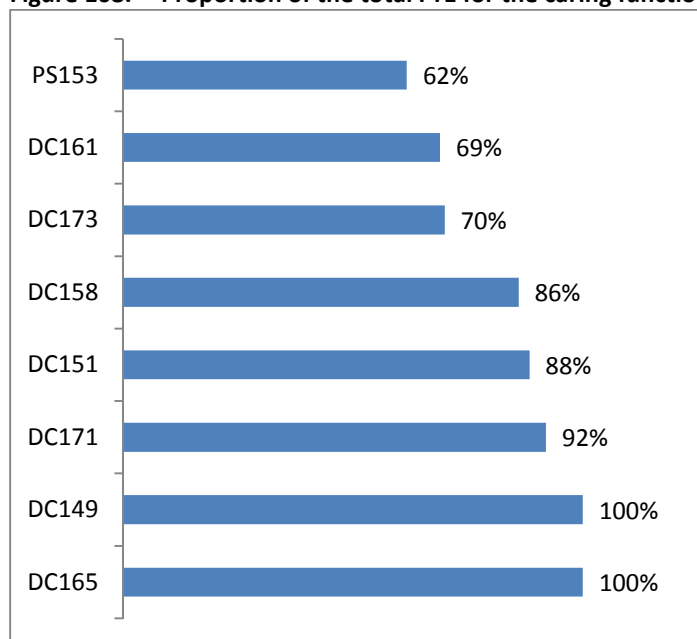
Figure 107. Number of the hours (per month) of the human resources per beneficiary



The proportion of FTE dedicated to the caring varies from 62 % to 100%. This proportion is not associated with the size of the project (see the table about the number of beneficiaries and the number of FTE):

- The projects with the lowest proportion of FTE dedicated to caring are different. There is one small project (PS153), one medium (DC161 with 2.9 FTE) and one big (DC173 with 5.43 FTE).
- Projects with the most FTE dedicated to caring are the opposite in term of number of FTE: the smallest project (DC149 with 1.5 total FTE) and the biggest project (DC165 with 5.6 total FTE). These two projects have the small level of hours available per beneficiaries (see the previous graph).

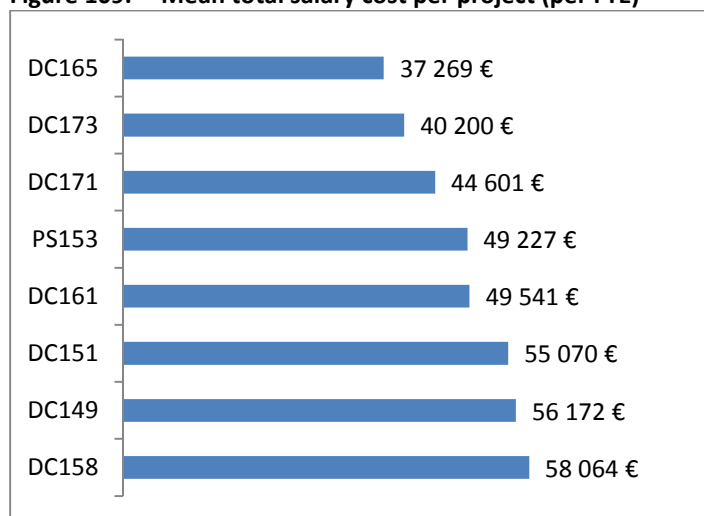
Figure 108. Proportion of the total FTE for the caring function (caring with or without any other function)



3.8.2 The costs analysis

The cost of human resources

Figure 109. Mean total salary cost per project (per FTE)

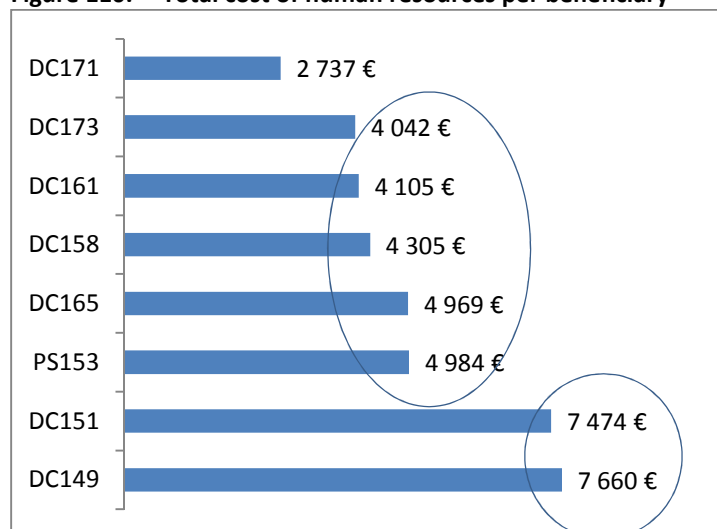


There are two main groups of projects according to the total cost of human resources per beneficiary:

- A first group with the highest level of cost, DC151 with 7 474 euro per beneficiary and DC149 with 7 660 euro per beneficiary
- The second group with a lower level of human resources cost per beneficiary, between 4 042 and 4 984 euro
- There is an outlier with 2 737 euro per beneficiary (DC171)

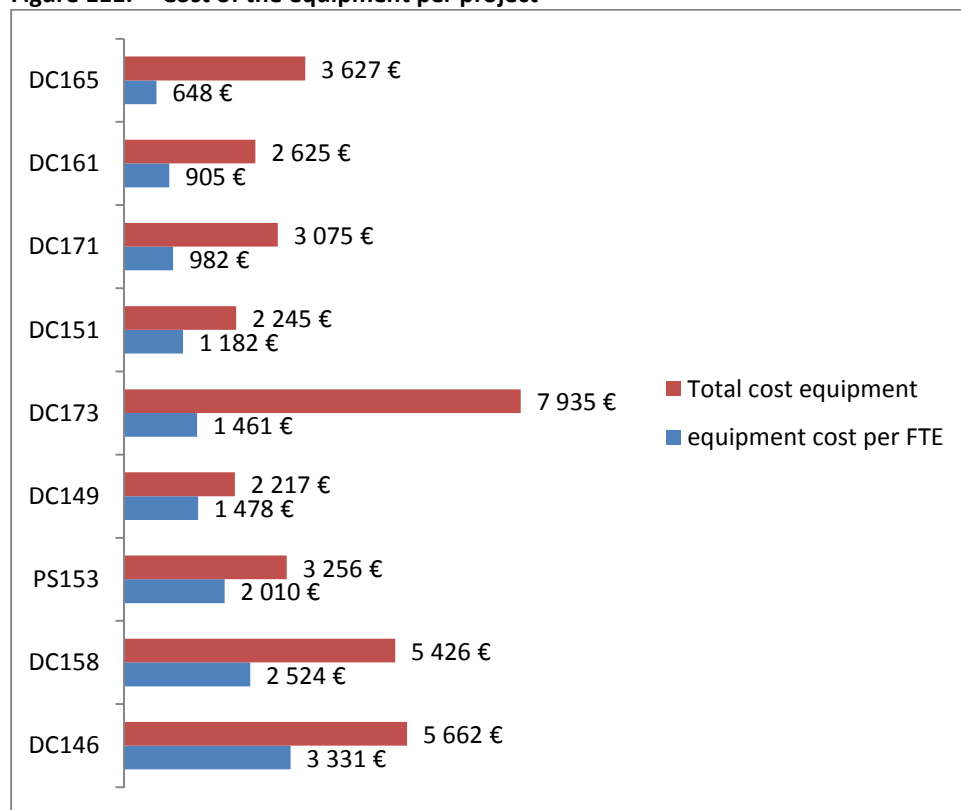
The range of the HR cost per beneficiary is important, it varies from 2 737 euro to 7 660 euro per beneficiary.

Figure 110. Total cost of human resources per beneficiary



The cost of equipment

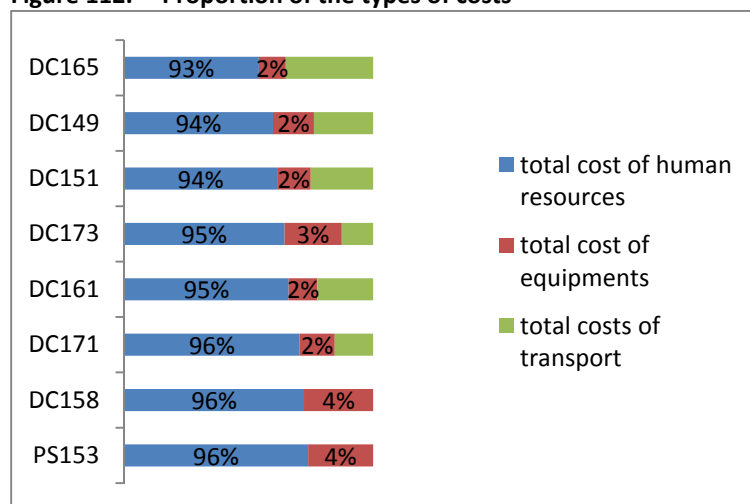
Figure 111. Cost of the equipment per project



	Transportation cost per beneficiary	Total cost
DC171	67	3 401 €
DC173	81	4 390 €
DC161	145	5 092 €
DC165	282	11 826 €

DC149	291	3 202 €
DC151	299	4 188 €

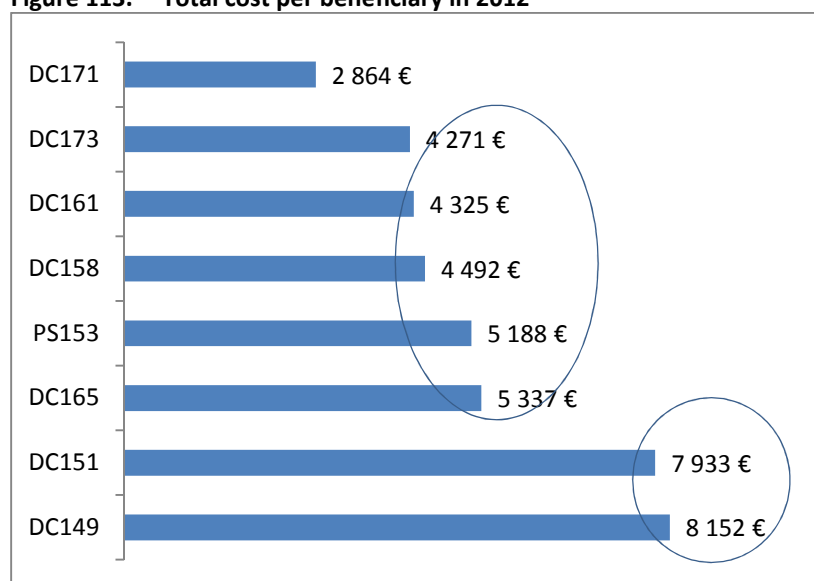
Figure 112. Proportion of the types of costs



The cost of equipment and transportation does not change the distribution of the human resources cost per beneficiary. There is an outlier with a relatively low cost per beneficiary, and two groups of projects:

- One group with a relatively high cost per beneficiary (two projects)
- Another group of projects with relatively medium cost (5 projects)

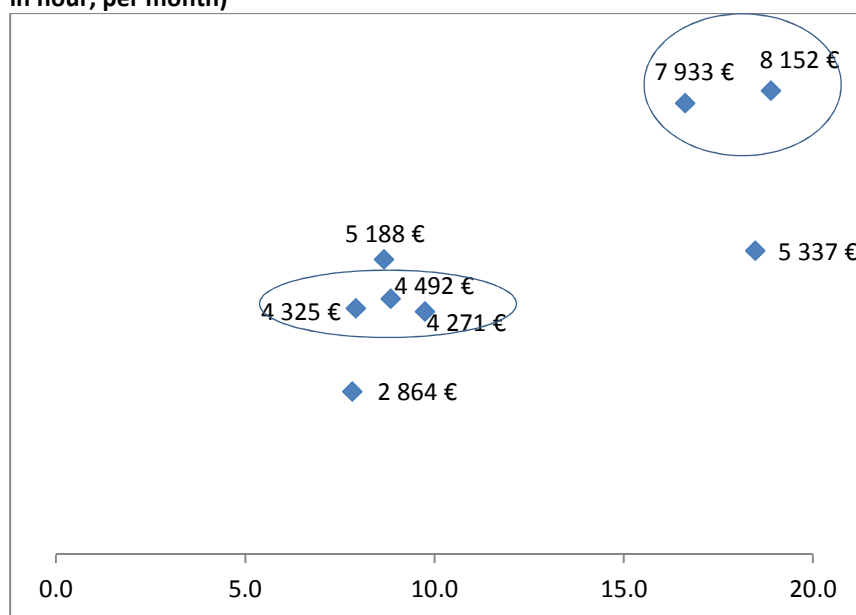
Figure 113. Total cost per beneficiary in 2012



3.8.3 Synthesis of the levels of resources used

The figure below shows that there are two outliers. Indeed, the project DC165 (5 337 €) has a relatively high level of time per beneficiary for a relatively low cost compared to the 2 other projects with the same level of time per beneficiary (about 18 hours per beneficiary per month). Among projects with a medium level of cost per beneficiary, one project PS153 is relatively more costly than the 3 others (5 188 for 8.7 hours per month).

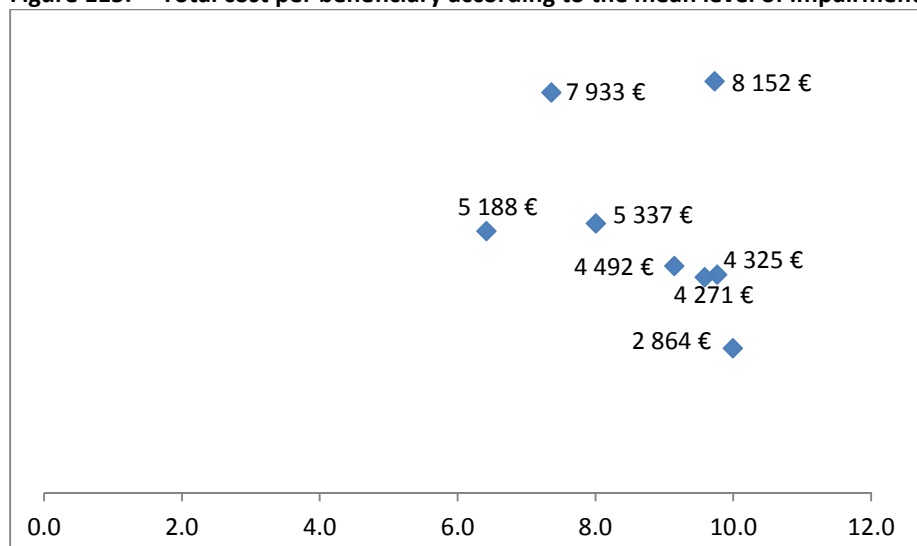
Figure 114. Total cost per beneficiary (in euro) according to the time per beneficiary (FTE dedicated to caring, in hour, per month)



3.8.4 The relation between the beneficiary profile and the cost per beneficiary

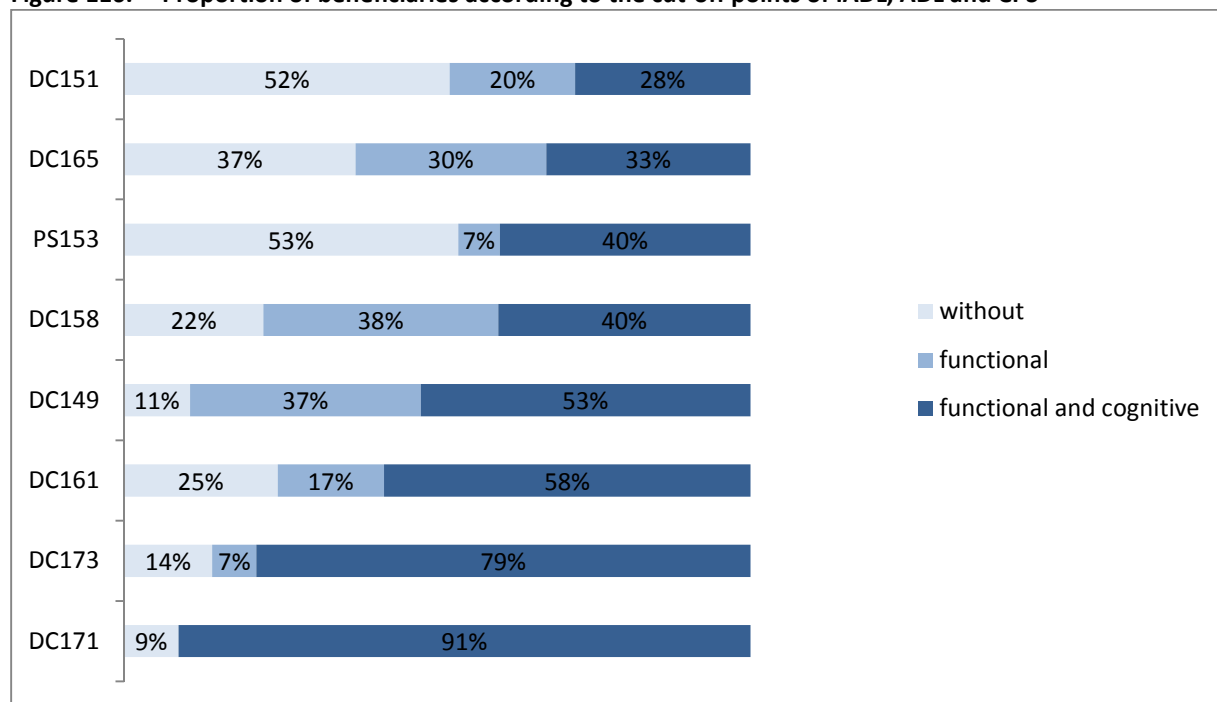
The mean level of impairment does not show a clear link with the cost per beneficiary. The project with the highest mean of impairment (10 on the combined score of scales), has the lowest cost per beneficiary.

Figure 115. Total cost per beneficiary according to the mean level of impairment (ADL+IADL/8+CPS)



One of the most costly daycare projects, has a population with the lowest level of impairment, (DC151) with more than half of the beneficiaries without any ADL problem or any cognitive trouble.

Figure 116. Proportion of beneficiaries according to the cut-off points of IADL, ADL and CPS



- The number of beneficiaries per FTE for daycare projects does not vary a lot compared to other groups of projects: between 7 and 16.
- The number of hours of caring varies from 7.8 to 18.8 hours per months per beneficiary
- There are 2 groups of projects in term of costs: one group (5/8 projects) with the total cost per beneficiary between 4 042 to 4 984 euro and a smaller group of 2 projects with 7 474 and 7 660 euro per beneficiary.
- The daycare projects with a majority of beneficiaries with severe cognitive problems do not have the same level of cost per beneficiary (between 2 864 and 8152 euro).

3.9 Synthesis of the cost of interventions

The most costly intervention is night care at home for several beneficiaries per night, on average amounting (at project level) 6 294 euro per beneficiary in 2012 for a mean time of 16 hours per month per beneficiary. With 16 hours per month, the frequency of visits per beneficiary might vary between 2 and 4 visits per week, according to the different characteristics: the beneficiary's needs, the distance to travel, the organizational modalities (e.g. one professional with or without assistance), etc. The night care at home for one beneficiary per night, for 5 927 euro (on average, per beneficiary in 2012) for 20 hours per beneficiary per month. If a night represents 8 hours of supervision, this intervention may be provided on average twice per month.

Daycare also represent an important average cost per beneficiary per year with 5 320 euro for 14.5 hours (per beneficiary per month) (8 projects). This time does not represent the total time in a daycare center. 14.5 hours per month is the time for receiving provisions of particular healthcare services (e.g. occupational therapy, psychological support, nurse...). Moreover, the session might be more often collective (in a group) than at home.

Case management and psychological support costs (one project only) 3 019 euro for 14 hours monthly per beneficiaries, representing 7 hours per month per beneficiary.

Night hostel yearly costs 2 815 euro for 7 hours per month, which represents almost 1 night per month (assuming 8 hours for 1 night).

Two projects propose some case management and residential rehab, for an average yearly cost of 2 598 euro for 7 hours per month. This level of time is twice less than in daycare. The difference might be explained by different factors: the beneficiaries do not benefit from a long stay in rehabilitation center while beneficiaries in daycare go on regular basis.

In the category of case management providing occupational therapy and physiotherapy; the projects of case management and occupational therapy and physiotherapy, have similar yearly costs, 2 453 euro and 2 311 euro for a monthly time of 6 and 5 hours per beneficiary to the projects with case management and occupational therapy only.

Psychological supports projects have a yearly cost of 2 189 euro for 5.1 hours per month per beneficiary. Compared to the projects providing case management and psychological support (6.7 hours per month), there is a difference of 1.6 hours in time. According to the literature (Beland F et al. 2006) the minimum of time per beneficiary for the case management is between 3.4 hours per month (40 beneficiaries for 1 FTE case manager) and 2.7 hours per month (50 beneficiaries for 1 FTE). Therefore the projects providing case management and psychological support may not have sufficient resources for providing the case management. Otherwise, another explanation is that in projects of case management support, the psychological is less intensive than in psychological support projects.

Case management solo and occupational therapy projects are the least costly interventions with a similar yearly cost per beneficiary (771 and 780 euro) and similar monthly number of hours per beneficiary (1.8 and 2 hours). For case management solo, the mean time is under the minimum level of hours per month required for frail older people: between 2.7 hours and 3.4 hours at least (Boult C et al. 2011).

Project types*	Mean yearly cost per beneficiary	Mean monthly time per beneficiary (in hour)	Number of projects
NCseveralpat	6 294 €	15.9	6
NCwholenight	5 927 €	19.6	3
Daycare	5 320 €	14.3	8
CMPSy	3 019 €	6.7	1
Nhostel	2 815 €	6.9	3
CMOTSPEECH	2 631 €	6.0	2
CMResidential rehab	2 598 €	6.9	2
CMOTPHY	2 453 €	5.9	3
CMOT	2 311 €	5.3	3
Psycho	2 189 €	5.1	8
Others	2 132 €	5.2	3
CM residential	1 130 €	6.8	2
OccupationalTherapy	780 €	2.0	7
CasemanagementSolo	771 €	1.8	2

Conclusion

The cost of projects has been estimated according to the data collected through self-administered questionnaires. 3 data collections have been realized in order to improve the survey. For the second survey, all project coordinators have been contacted in order to explain the aim and the questions of the whole questionnaire. For the last survey, there were systematic contacts (by-email or by phone) in order to correct inconsistent answers. Therefore, the risk of misunderstanding of the survey has been limited.

Some projects have reported the difficulty to identify and quantify the resources used in the setting of P3, as some projects are closely linked by different organizations (the partners, the organization which has initiated the project). Nevertheless, the hypothesis is that the projects have declared the most important of the resources as those that are easily identified.

The number of beneficiaries per FTE significantly varies within projects of the same categories and there is sometimes no particular component in the intervention that explains why some projects have a higher number of beneficiaries (except for the outliers).

The salary costs or the equipment costs do not significantly modify the estimation of the mean total cost per beneficiary.

Moreover, there is no obvious relation between the overall cost per beneficiary and the level of impairment within categories of projects at the project level⁶ (except for occupational therapy projects, with an inverse relation).

⁶ Resources used have not been quantified for each care provision per beneficiary.

4 Appendix

4.1 Methodology

4.1.1 The data collection

The data was collected by means of a survey filled out by the administrative managers of projects and/ or other professionals if needed. A yearly online questionnaire has been designed using the Lime Survey software solution and was sent out to all the projects financed through P3 funding.

Three data collections have been performed. In 2010, the data has been collected over two periods, in March and in September, as some projects delayed the start of their activities for several reasons (administrative, difficulties to recruit some professionals...). This first data collection was mainly used as a pre-test. Indeed, we identified 3 key factors to ensure the reliability of the data collection: (1) the need to have a “routine” and relatively stable caseload as the level of the use of resources depends on the number of beneficiaries, (2) the need for a univocal understanding of the questions, and (3) the need to standardize the data collection on the other types of resources (open questions were proposed in order to collect data on costs which could not be identified a priori by researchers). In 2011, a new questionnaire has been constructed and the design of the data collection has also been adapted in order to get more valid answers. Also, the data collection has been split into two questionnaires: one for the implementation analysis, which is mostly qualitative and another one for collecting information on resources used, mostly quantitative (see in appendix the 2011 questionnaire).

The questionnaire for 2012 concerning the resources was based to a large extend on the questionnaire of 2011. It consists of 4 parts questioning:

- The funding sources,
- The description of human resources,
- The equipment used and travel costs,
- The description of the services provided.

In the three first parts some little changes were made in order to optimize data collection. Funding questions aim to achieve an exhaustive description of all sources of project income, including beneficiary payments and financial participations of other partner organizations.

For human resources, the estimation is based on the total number of professionals employed at the time of the survey and working in P3 projects. They can be employed by another organization, and we also include absent persons for whatever reason (maternity, sickness leave, holiday...). The questionnaire contained questions on the total FTE per profession, the total salary cost per profession (including all associated costs and benefits) and the type of the organization funding the salary costs. Beside their work for the project, employees often work part-time for the organization from which the project originates. The questionnaire of 2011 therefore asked about time and salary corresponding to both work for the project and overall work of the employee. To avoid any confusion in salary encoding, questions about the total FTE and salary costs were, in the questionnaire of 2012, limited to the time really spent in the project., ...). For these employees, salary costs and FTE were asked for a period of one year.

In the third part of the questionnaire, projects were asked to describe all the equipment used by the P3 project in 2012. After listing some general material such as communication means (brochures, business cards and other) and office supplies such as office desks, PC, printers, software, website development and telephones; projects could also list some specific materials used in the P3 project. For all materials, the amount of each item was asked, as well as the price per unit and the name of the organization financing this material. For the general items, the price was not asked. Projects were

also questioned about their transportation means and costs, including both the cost of purchasing the vehicle and the amount of km covered with this vehicle for the project.

4.1.2 Database elaboration and cleaning

The funding sources data

Data was cleaned and analysed with STATA ©. Numeric variables often contain non-numeric parts such as: signs (€), frequency references (per day, per hour), calculations and clarifications that had to be deleted. In this part of the questionnaire, projects were asked for the beneficiary lump sum and the service payments. Some answers had to be allocated to a different part in the questionnaire due to negligent or quick encoding. Information about service payments was sometimes entered as “other beneficiary lump sum”, while this had to put in as an answer to a specific question later on in the questionnaire.

For the beneficiary lump sum and service payments, an amount per unit as well as an average amount per beneficiary per year was asked. Projects that failed to fill out these details, were contacted by e-mail. Some projects had difficulties to calculate an average amount per beneficiary per year or were of the opinion that average numbers were not representative. Beneficiary contributions with missing data were deleted, but that was only the case for 4 observations.

The survey also included questions on project funding by other organizations. Only 8 projects benefit from such a funding. Projects were contacted in case of missing values of the funded amount. All projects having the possibility to gain from other funding sources in case of need, declared not having received such funding by now.

A few projects encoded an allowance per hour of work of an employee or a partial salary financing. This information is not seen as a funding but as a financing of personnel and is therefore deleted from this part of the results.

The human resources data

Two projects failed to complete this part of the questionnaire since employees originate from several different organizations, making it difficult to gather the necessary information from human resources services. Nevertheless these projects provided the survey with data concerning the professions of the employees working in the project and their corresponding working time (FTE). One of these projects succeeded to give the salary data several months after closing the questionnaire. For reasons of privacy, this project didn't inform us with the salary of the manager of the project. The other project never supplied the employees' salaries and didn't respond on personal mails.

Data was examined to trace errors in data encoding and to reveal missing data. Missing data consisted of missing values for total salary cost and amount of FTE per profession. Data was further examined to detect errors in data encoding. Errors consisted of errors in salary costs and errors in number of persons that has been replaced or recruited in 2012.

- Salary costs were recalculated for a 100% working time in order to reveal unreasonable values. Unreasonable values for total salary cost often generates out of negligent data entering, i.e. the total salary cost for the overall working time of the employee was given, while the total salary cost for the time working in the project was asked. Salary boxplots were made per profession including all projects to compare salaries between projects and to detect more outliers. Problematic data could be corrected by writing the concerning projects and asking specific information. The response on those specific questions was very satisfactory. Only a few projects were contacted by phone to obtain the remaining missing answers. Extreme low values were related to:
 - miscalculations: e.g. projects encoding a net salary instead of the total salary cost, projects making an estimation for total yearly salary cost while the employee worked only part of the year
 - mistakes of encoding

- confusion of the type of wage: a lump sum per patient being a compensation instead of a real salary: a physician receiving a fixed compensation per file instead of a salary per working-time

Extreme high values were related to:

- mistakes in encoding of the project working-time
 - employees with long years of service and an organizational or directing function (these data were kept)
- Other mistakes occurred in entering the total number of persons that has been replaced in 2012 and the amount of employees recruited in 2012. Contacting these projects revealed that this data generates out of negligent responding of the question. Answers were given in % working time, while total amount of replaced or recruited employees was asked.

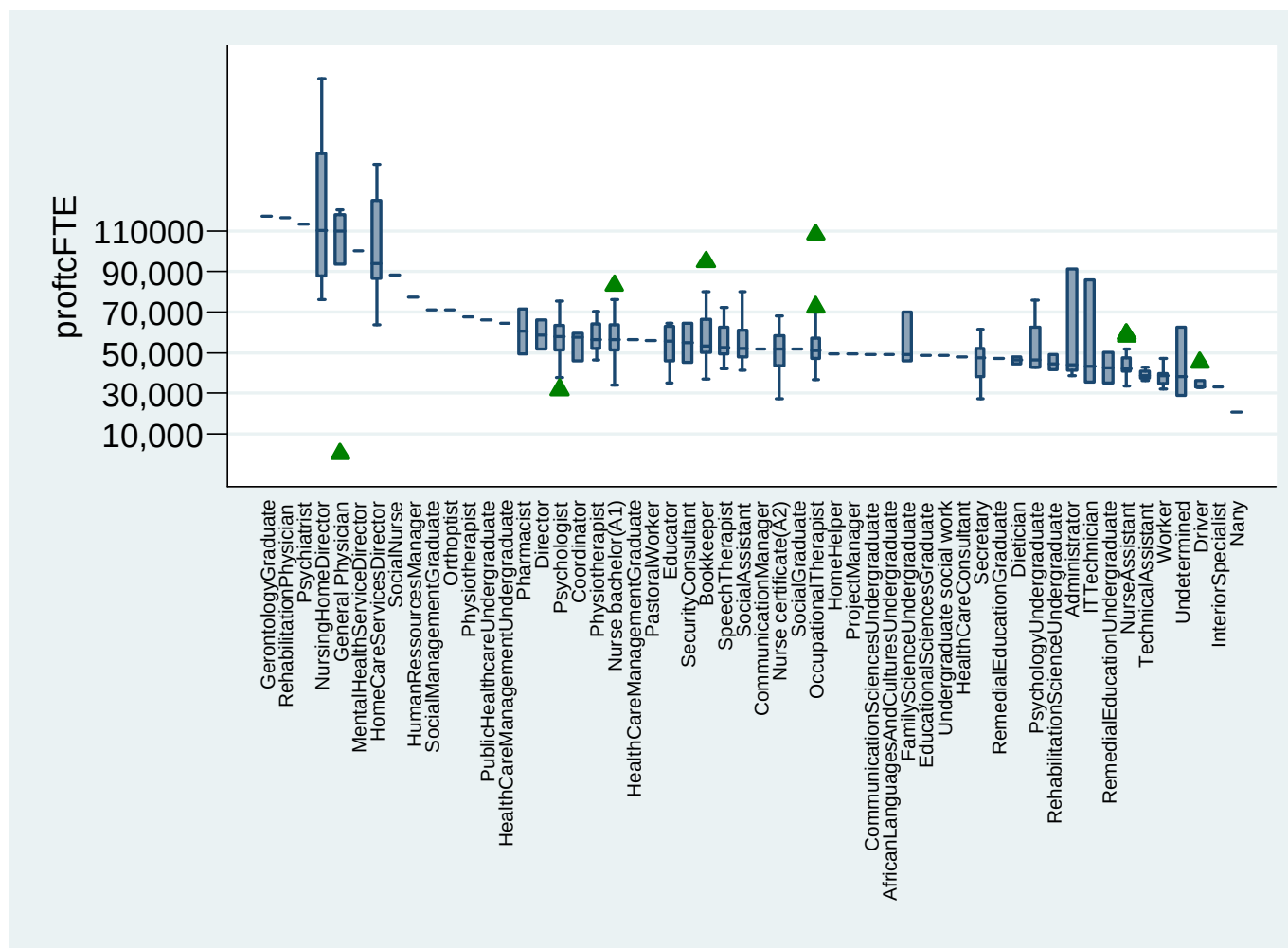
Missing data was completed and wrong data detected was corrected with information received from the concerning projects. For missing salary costs, in case of project failure to give the total salary costs, the median salary cost for all projects was calculated per profession and recalculated corresponding to the given employee working time (one project that didn't respond on a question about an extreme low value of salary cost and one missing value for an account).

Table 31. Glossary

French	English	Dutch
administratif	administrative	administratief
aide familiale	home helper	Familiehulp
aide logistique	technical Assistance	logistische medewerker
aide-soignant	nursing assistant	Zorgkundige
aide-ménagère	household help	poetsdienst
assistance	Assistance	ondersteuning
assistant social	social assistant	Maatschappelijke werker
Bachelier en psychologie	psychology bachelor	bachelor in psychologie
bachelier en sciences de la famille	family science bachelor	bachelor in familiewetenschappen
bachelier en sciences de la réadaptation	rehabilitation science bachelor	bachelor in readaptatiewetenschappen
chauffeur	driver	chauffeur
chef de département	Department manager	departementshoofd
chef de projet	Project manager	projectmanager
chercheur	researcher	onderzoeker, vorser
comptable	accountant	boekhouder
consultant en sécurité	Security consultant	veiligheidsconsulent
coordinateur	coordinator	coördinator
diététicien	dietician	diëtiste
directeur	director	directeur
directeur MRS MRPA	Nursing home director	directeur van woon-en zorgcentrum
directeur services de soins à domicile	Homecare services director	directeur van dienst voor thuiszorg
direction	management	directie
éducateur	educator	opvoeder, educator

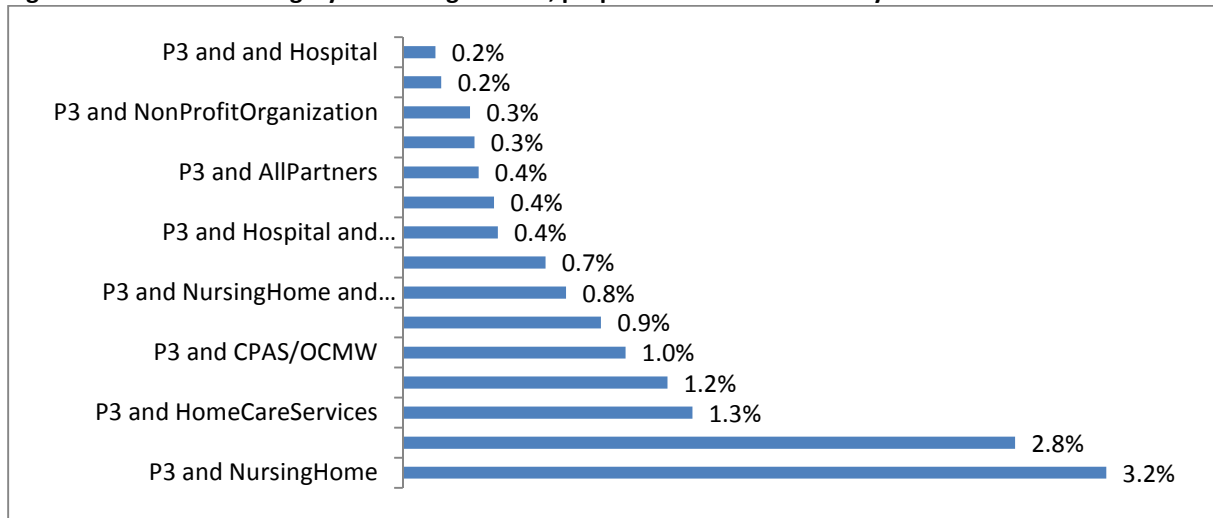
éducateur santé	healthcare educator	gezondheidseducator
éducateur spécialisé	specialised educator	gespecialiseerde educator
ergothérapeute	occupational therapist	ergotherapeut
garde-malade		ziekenoppas
gériatre	geriatrician	geriater
Inconnu	Unknown	onbekend
infirmière A1	Bachelor in nursing	Verpleegkundige bachelor
infirmière A2	Hospital nurse	Ziekenhuisverpleegkundige
informaticien	computer specialist	informaticus
kinésithérapeute	physiotherapist	kinesitherapeut
licencié en science de la santé publique	master in public healthcare	licenciaat volksgezondheid
logopède	speech therapist	logopedist
master en gérontologie	gerontology master	master gerontologie
master en management social	Social management master	master social management
master en orthopédagogie	Remedial Education master	master orthopedagogie
master en psychologie clinique	Clinical Psychology master	master klinische psychologie
master en sciences médico-social	Medico social science master	master medico-sociale wetenschappen
master en sociologie	sociology master	master sociologie
master en travail social	social work master	master sociale wetenschappen
medecin généraliste	general practitioner (GP)	huisarts
orthopédagogue	orthopedagogue	orthopedagoge
ouvrier	worker	arbeider
pédicure		pedicuur
pharmacien	pharmacist	apotheker
psychiatre	psychiatrist	psychiater
Psychologue	psychologist	psycholoog
responsable communication	communication manager	communicatie manager
santé	Healthcare services	gezondheid
secrétaire	secretary	administratieve medewerker
social	Social	sociaal
Specialist d'intérieur	Interior specialist	
technicien	technician	technicus

Figure 117. Median salary cost per profession per FTE in P3 (weighted per working time, in euro, per year*)



*Except for the general physician, the outlier < 10 000 is explained by the type of payment which is fee for services. This type of revenue could not have calculated for the whole year.

Figure 118. *Other category of funding sources, proportion of the total salary cost



The equipment and travel cost data

Data was examined to detect missing values. Missing data consisted of missing values for the total number used of the considered equipment, the name of the organization financing this equipment and the purchase value. Some data have been completed after contacting the projects by mail.

Data was further examined to detect errors in encoding. Errors consisted of wrong responding entering prices instead of the amounts for office desks, telephones and mobile phones.

Last question concerning the materials used in the project informs if all materials used in P3 project have been described and asks for any comments on materials and associated costs. This question gave us some interesting information on the current quality of this part of the database and the necessity of improving the dataset. Some projects remarked that:

- they didn't give all materials used in the projects and list some other materials
- they've only mentioned the materials bought in 2012
- it is difficult for their project to list up all the materials used by their project since their project covers a large area, working together with different partner organizations, making it difficult to know what specific materials are used.
- some materials have a double function and are used in both the P3-project as the organization it originates from, making it difficult for the project to list up the materials used for P3

Projects complaining of not having listed all materials were contacted by mail or phone and encouraged to accomplish their dataset. The remark from two projects having listed only the materials bought in 2012, and not as asked all materials used in 2012, revealed that some more projects might have misunderstood this question. In an attempt to gather all this missing information, all projects were contacted again by mail given the possibility to accomplish the list of materials used in the P3-project. This mail clarified more explicit the criteria for listing the materials used in 2012, i.e:

- all materials that were purchased in 2012 or earlier
- materials that were not bought or loaned/given by another organization.

The only criteria were that these materials had to be used by the P3-project in 2012. A few projects accomplished their dataset after sending this last mail. One project confirmed they'd only listed the materials bought in 2012 since the information on previously bought materials was missing.

Data was then cleaned for exportation into STATA ©. Numeric variables often contain non-numeric parts such as: signs (€), frequency references (per day, per hour), calculations and clarifications (1 desk and 6 chairs); that had to be deleted.

An open question was used to inform the organizations financing the different materials. These answers also had to be translated and coded before exporting to Stata.

Generally it can be noted that there is a big difference between projects in listing the materials used in their projects. Some projects give an extended and very precise list of materials, while others group lots of materials in some overall groups of materials (ex: materials for physiotherapy). Some other projects just list a few specific items. The overall cost of materials used by the projects must therefore be seen as a general view of possible extra expenses.

Besides closed questions on a given set of materials used by every project such as communication means (brochures, etc...), office supplies (desks, PC's etc...) and means of transportation; the questionnaire asked about the other materials used in the projects by means of open questions. This results in a large variety of equipment, which is difficult to analyze. A classification was required to group the different types of equipment into categories according to their use (beneficiary or work equipment). Not all input of materials could be retained. After contacting the projects to obtain extra information on materials with a too vague description, the following rules were followed to select useful equipment:

Materials retained

- Materials related to healthcare ex: healthcare consumables, glucometer
- Materials related to therapy service ex: therapy equipment, kitchen therapy supplies
- Office supplies not listed in the list of general materials ex: beamer
- Specific beneficiary equipment ex: raised bed garden, videophone
- Specific work equipment ex: GPS, blood pressure monitor, working clothes

Materials eliminated

- Materials related to hygiene care in daycare or rehabilitation center services such as: beneficiary bath lifter, parker bath because of the difficulty to assess the time of use by projects.
- Materials related to the construction, furnishing or maintenance of the daycare or night care location such as: alternating mattress, electric bed, room construction, maintenance of elevator because of the difficulty to assess the time of use by projects.
- Materials with a vague description and without a price ex: little items, sensibilisation materials
- Materials used for informal education of professionals
- Consumables for social activities: birthday parties, family meetings

After coding the materials as close as possible to the given description, materials were classified into different classes according to their nature: consumables, evaluation tools, small work equipment, furniture, etc... and further organized in 4 main categories according to their use:

- communication means,
- office supplies,
- beneficiary supplies
- work equipment:

Table 32. Equipment classification and depreciation coefficient: the communication means and office supplies

			Coefficient of depreciation
communication means	communication material	brochure	1
		business card	1
		display boards	0.1
		poster	1
	communication tool	website	0.2
office supplies	office furniture	desk	1

	office software	health specific software	1
	office technical equipment	beamer	0.2
		card reader	0.2
		laptop	0.2
		paper binder machine	0.2
		PC	0.2
		Printer	0.2
		retro projector	0.2
		tablet	0.2
		telephone	0.2
		telephony	1

Table 33. Equipment classification and depreciation coefficient: the beneficiary supplies

activity consumables	consumables for kitchen activity	1
	paper materials	1
healthcare consumables	disposable bags with absorbing gel	1
	essential oils	1
	healthcare consumables	1
	incontinence consumables	1
	physiotherapy consumables	1
	therapeutic bands	1
activity equipment	equipment for creative therapy	1
	equipment for kitchen activity	1
	flatscreen	0.5
	fridge	0.1
	HIFI instalation	0.2
	microwave	0.1
	musical therapy room furnishing	0.1
	raised bed garden	0.1
	television	0.1
	video game equipment	0.2
healthcare supplies	aerosol	0.2
	glucometer	0.2
	pill box	0.2
	pulse oximeter	0.2
mobility system	cargobike	0.1
	walking frame	0.1
	wheelchair	0.1
security system	individual alarm system	0.2
	router	0.2
	videophone	0.2
beneficiary support system	mobile beneficiary lift	0.1
Small activity supplies	activity game	0.2
	books	0.2
	DVD	0.2
	games then and now	0.2
	kitchen utensils	0.2
	newspaper	1

	parlor game for the elderly	0.2
	playing cards for the elderly	0.2
	therapeutic material: games, educational and exercise supplies	0.2
	therapy games and consumables:scrabble, puzzles, mozaik, dough, construction game,...	0.2

Table 34. Equipment classification and depreciation coefficient: work equipment

medical equipment	blood pressure monitor	0.2
	first aid bag	0.2
	frontal thermometer	0.2
	health care bag pack	0.2
	stethoscope	0.2
paramedical equipment	occupational therapy equipment	0.1
	paramedical support equipment	0.2
	physiotherapy equipment	0.1
	rehabilitation equipment for spatial orientation	0.1
	snoezelen equipment	0.1
	support and demonstration equipment	0.2
evaluation tool	personality evaluation test	0.2
protecting equipment	protection gloves	1
	protection gloves, masks and disinfectant	1
small work accessories	bagback	0.2
	health specific book	0.2
	laptop bag	0.2
	life jacket	0.2
	map of Brussels	0.2
	medical suitcase	0.2
	torche	0.2
technical work accessories	camera	0.2
	digicorder	0.2
	GPS	0.2
	mobile phone	0.2
	technical equipment	0.2
working clothes	apron	1
	clothes	1
	staff working clothes	1

To determine the total cost of materials for a particular project, some rules were set concerning the price and quantity of the materials:

For the specific materials used by the projects the amount of the purchased material and the purchase price were asked. The given quantity and price are used for most materials. When a certain kind of material was used by several projects, the average price was taken of all the prices quoted for this material. When prices were missing, prices were searched on the internet.

For the more commonly used materials such as communication means and office equipment, projects were asked to give the amount per item used by the project. For these materials a general price is determined by searching and comparing prices on the internet and setting an acceptable price. For the quantity of these materials some rules were set:

- For the communication items such as brochures, business cards and others, the used quantities declared by the projects are considered
- For the office supplies such as desks, PC's, printers, websites, software, telephones and mobile phones, the amounts used by the projects were requested. Some projects were very complete and list more office supplies on the open question. Since not every project extensively listed all office supplies, a general office cost was used for all projects. This office cost is an all-embracing cost containing costs for office furniture, office equipment and stationary office supplies as well as all associated office costs such as: cleaning, maintenance, energy, etc.... These costs are recalculated on an annual basis for 1 FTE. This general office cost allows to equally evaluate office expenses for each project. Since projects differ in size and their proportion of office expenses, some rules were set to determine the quantity. In general, the amount of desks = Q (questioned in the survey) and the amount of FTEs working for the project are used. The ratio Quantity / FTE is then used as a corrected quantity-variable:
 - If $Q / FTE < 1 \rightarrow$ total office cost = Quantity * office cost for 1FTE
 - If $Q / FTE > 1 \rightarrow$ total office cost = total FTE * office cost for 1FTE. For the calculation of the ratio, projects are grouped per project type. When the ratio Q/FTE exceeds 1, the quantity is replaced by the total number of FTE, assuming that 1 FTE cannot use more 1 office.
 - If $Q / FTE = 1 \rightarrow$ the quantity mentioned is used

For PCs the same procedure was followed. The price of the PC is also an overall price including peripheral equipment and basic software.

For the other office materials such as cell phones, printers and website, the specified amounts and prices were used. If no price was asked, a reasonable price was set and used for any project using this considered material.

For communication materials such as brochures, posters and business cards, the declared amount is considered as the total amount covering the total duration of the project. Therefore the quantity, of these materials is divided by 5.

Some projects find it difficult to give a price for telephony, especially in case of mixed activities it is difficult to attribute a part of the telephone cost to the P3-project. Other projects gave a total number of phones instead of the total telephone cost of the P3-project. The mean telephone cost over all projects is then used as total telephone cost. To calculate this mean telephone cost some extreme values were eliminated. 2 projects clearly gave estimations instead of real figures (telephony cost: 8000 euro for the 8 collaborators).

Some projects use health specific software such as caredoc, Geracc:administration et facturation, sharepoint etc... Missing prices are replaced with given prices for the same product. One project developed a tailored program for a high cost. Nevertheless, the software development cannot be invoiced to the P3-project as this activity does not directly attributes to the main goal of the project. Only the use of software can be invoiced to a P3 project. Therefore, a lump sum of 300 euro per year was assigned for any health specific software.

For all prices, the depreciation time was used to calculate the cost per year for long duration equipment. The depreciation time used is 10 years (e.g. physiotherapy equipment), except for computers and related technical devices for which it is only 5 years. Consumables such as healthcare consumables, protective clothing and communication material (brochures, business cards,...) are not amortized. Their price is given on a yearly base. The hypothesis is that no equipment has any value after the depreciation time.

- General office cost for 1 FTE

According to the guide of office rental (www.kantoorhuur.be), the total office cost consists of different parts:

		Proportion
A) Building costs	Office rental and taxes	60 %
B) <u>Installation and interior</u>	Furnishing, furniture, equipment and stationairy office supplies	10 %
C) <u>Maintenance, energy and insurances</u>	Maintenance, cleaning, water, electricity, sewer system and insurances	20 %
D) <u>Services and facilities</u>	Reception service	7 %
E) <u>Administratie van het kantoor</u>	Salary and other administration expenditures	3 %

Services and facilities are not considered and administration costs are included in salary costs. Therefore the office rental cost (including taxes) can be considered as being 90% of the total office cost.

Prijzen voor kantoorverhuur (Eur/m ² /jaar)	Hoogste	Gemiddeld
Antwerpen Centrum	144	99
Antwerpen periferie	136	95
Brussel Centrum	300	172
Buitenwijken en randgemeenten	165	134
Namur	161	118
Luik	110	188

Source: CB Richard Ellis in kantoorhuur.be

An average of 134 euro/m²/year is used as rental cost per FTE per m². The optimal surface per FTE is 9 m² (www.pro_safe.be). The total rental cost being 90% of the total office cost, the total office cost would be: 1447 euro/FTE/year.

- General PC cost

The price of the Pc consists of the PC, peripheral equipment, maintenance and basic software: The price is set at 1 300 euro.

PC and peripheral equipment	900
software	300
maintenance fee	100

- Website

The price of the website (from IT expert) is set at 1 290 euro and consists of :

hosting and domain name	40
design and development	900
maintenance cost	350

- Transport (over 5 years of amortisation)

Figure 119. Cost used to price vehicles used
(except for personal vehicles, only the cost per km was included)

minibus	20 000
car	16 000
moto	7 000
bicycle	850

4.1.3 The descriptive statistics of the profile of beneficiaries

The individual data are from the Belrai database (see export of September 2013), only for beneficiaries who gave an informed consent for the collect of individual data. The hypothesis is that in average, the beneficiaries since the start of project who gave an informed consent are representative of the whole population included in project, with and without project.

4.1.4 Estimation of the total number of beneficiaries in 2012

Projects declared the total number of beneficiaries in online form: beneficiaries with and without informed consent. Only projects a with a consistent total number of beneficiaries have been analysed in descriptive statistic part on the cost per beneficiaries according the following criteria: total number of beneficiaries > total number of beneficiaries in the Belrai (with informed consent).

List of abbreviations

Abbreviations	English	French	Dutch
ADL	Activities of Daily Living scale	Activités de la vie journalière	Activiteiten van het dagelijkse leven
BelRAI	Belgian Resident Assessment Instrument	Application web BelRAI	BelRAI web applicatie
IADL	Instrumental Activities of Daily Living	Activités instrumentales de la vie quotidienne	Instrumentele Activiteiten van het Dagelijks Levenschalen
CPS	Cognitive Performance Scale	Echelle de performance cognitive	Cognitief Presteren Schaal
DRS	Depression Rating Scale	Echelle de dépression	Depressieschaal
FTE	Full-Time Equivalent	Equivalent Temps Plein (ETP)	Voltijds Equivalent (VE)
FOP	Frail Elderly People	Personne Agée Fragile	Kwetsbare Oudere
NIHDI	National Institute for Health and Disability Insurance	Institut National Assurance Maladie et Invalidité (INAMI)	Rijksdienst Instituut Ziekte en Invaliditeitsverzekering (RIZIV)
P3	Protocol 3 Projects	Projets Protocole 3	Protocol 3 Projecten

Bibliography

Beland F, Lebel P, Bergman H, Clarfield AM, Tousignant P, & Contandriopoulos AP et al. A system of integrated care for older persons with disabilities in Canada: Results from a randomized controlled trial. *J Gerontol A Biol Sci Med Sci* 61(4), 367-373. 1-4-2006.

Boult C, Reider L, Leff B, Frick KD, Boyd CM, & Wolff JL et al. The effect of guided care teams on the use of health services: Results from a cluster-randomized controlled trial. *Archives of internal medicine* 5, 460-466. 1-3-2011.

Drummond MF, Sculpher MJ, Torrance GW, O'Brien BJ, & Stoddart GL. 2005. *Methods for the economic evaluation of health care programmes. Third Edition 2005* Oxford University Press.