HAUTE AUTORITÉ DE SANTÉ

Health economics assessment

In-hospital and at-home cancer chemotherapy: a comparison of costs and organisation of care

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Synopsis

Title	In-hospital and at-home cancer chemotherapy: a comparison of costs and organisation of care
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Requested by	Directorate for Hospitals and Organisation of Care (DHOS)
Produced by	*Haute Autorité de santé* (HAS) – Health Economics and Public Health Department
Intended for	Oncologists, cancer centres (CLCC), HAH services, doctors working for cancer networks, general practitioners, independent nurses
Objectives	To compare the costs of different types of care - hospital, hospital at home (HAH), and care networks – for the management of patients receiving chemotherapy.
Assessment method	- Systematic review of the literature - Search of the French hospital database (PMSI) - Data extraction from the HAH French survey - Discussion among members of an *ad hoc* working group - External validation by peer reviewers
Literature search	Period: 1994-2004 for international studies; no limit for French studies 86 references selected among 146 analysed
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Participants (annex 1)	- Working group - Peer reviewers
Internal validation	Opinion delivered by the HAS Committee for Practice guidelines and practice improvement on 13 May 2005 Validated by the HAS Board on 29 June 2005
Related publications	The following can be found on the HAS website (www.has-sante.fr): - the full report is in French. ("Analyse comparée de la chimiothérapie anticancéreuse administrée à l'hôpital ou prise en charge à domicile: Aspects économiques et organisationnels") - Guidelines (in English): "Patient selection criteria for at-home cancer chemotherapy" (full report in French)

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I. Introduction

In 2003, at the request of the DHOS[1], ANAES[2] published guidelines on patient selection criteria for at-home cancer chemotherapy to ensure that safety and quality would be the same as for hospital treatment[3].

As a continuation of that report, the DHOS requested a report on the economic aspects of cancer chemotherapy. It asked for a cost comparison for different care services: hospital care (full hospitalisation or day hospitalisation), Hospital at Home (HAH), and care networks[4], excluding administration of chemotherapy - whether prescribed by a hospital or not – by independent non-hospital professionals not working within a network.

The report also includes information about the satisfaction of patients, carers and care staff, as well as details of organisational aspects of care.

II. Assessment method

The cost comparison for chemotherapy was based on a critical review of the international literature in French and in English. The data were completed for France by a search of the PMSI[5] databases and by extracting specific data from the HAH survey by IRDES[6] (formerly CREDES[7]).The report was discussed at two meetings of a working group of 16 experts nominated by the institutions or learned societies concerned. The conclusions and proposals that emerged from these experts' opinions were submitted to 26 peer reviewers for their opinions.

III. Where is chemotherapy given

Comparing the number of chemotherapy sessions in hospital with the number of HAH places or the number of patients treated within a care network was not easy, since neither the units of measure nor patients' treatment protocols were necessarily the same. However, the data analysed suggested that, in France, chemotherapy is mostly administered in hospitals and not very often by care networks. In addition, the working group pointed out that chemotherapy is often given at home by independent non-hospital professionals, who do not belong to a formal care network (these professionals were excluded from the present study).

IV. Cost comparisons

- **HAH versus hospitalisation:** In 9 out of 13 published health economics assessments, HAH was found to be less expensive than conventional hospitalisation in terms of mean direct costs. However, the results were highly dependent on context, protocols

[1] DHOS: Hospital and Organisation of Care Directorate.
[2] ANAES: French Agency for Accreditation and Evaluation in Healthcare.
[3] See www.has-sante.fr for guidelines in English and full report in French.
[4] The term "network" has come to describe an increasingly strictly defined structure. In published articles, certain types of cooperation between hospital doctors and doctors in the community may be referred to as a "network" but not meet the 2005 definition (see health networks in the French report).
[5] PMSI: French national computerised medical information system.
[6] IRDES: Institute of Health Economics Research and documentation.
[7] CREDES: Centre for Health Economics Research, Study and Documentation

and organisational aspects. This meant that the results of the 10 foreign studies could not be transposed to the French situation. In France, only one study was a randomised crossover trial, and the results obtained were equivocal. Moreover, because the results of these studies referred to different types of cost (mean or marginal), it was not possible to conclude in favour of either care service. It is likely that the introduction in France of an activity-based funding system (T2A) for HAH and hospital stays will affect the results of comparisons in the longer term.

- **Care networks versus hospitalisation:** In the 5 French studies, treatment within a network was less costly than conventional hospitalisation but cost calculations were complicated by the difficulty in defining the limits of a network. Moreover, comparisons of the cost of care were beset by design problems.

V. Costs borne by the family

There are few published data on costs, but they suggest that chemotherapy leads to costs for the family and carers, irrespective of the type of care service.

VI. Breakdown of costs in France

Using the results of the CREDES study for one-day hospitalisation as a reference, the cost of chemotherapy for a stay classified as GHM 681[8] in a public or private hospital was higher than the cost of HAH care (€575 *vs* €155.20, ratio 3.7 to1) The difference between in-patient hospitalisation and home care was even higher. On the other hand, when the calculations were based on the true duration of HAH treatment (7.78 days in the CREDES study), the cost of at-home care was higher than that of day hospitalisation (ratio 2.1 to 1). However, the nature of the care provided must be taken into account. Chemotherapy at home often covers not only the treatment per se, but other services in the overall management of a patient needing co-ordinated care.

The new method of activity-based funding by GHS[9] brings the GHM 681 tariff down to €481.40 excluding expensive drugs. However, these drugs and the cost of patient transport represent extra costs on top of hospitalisation costs which, although not part of actual treatment costs, must also be borne by national health insurance.

The percentage costs relating to pharmacy services for inpatients was lower than in the case of at-home care (27.5% *vs* 37.4% in the CREDES study).

When network costs are expressed as costs per day, the network was even less expensive than HAH. However, these results came from two studies which spread the cost of chemotherapy over time. The unit of measure has therefore to be chosen with care.

In summary, when the length of stay considered was 1 day, management at home under an HAH scheme or network appeared to be less expensive than conventional hospitalisation. However, because length of stay differs, the two services cannot really be compared.

[8] GHM: Diagnosis related group (DRG) in France
[9] GHS: *Groupes homogènes de séjours* (Hospital stays for which the technical, material and human resources for patient management are comparable)

VII. Patient health and satisfaction

- **Patient health:** Management under an HAH scheme or within a network gave similar results to conventional hospitalisation. However, the level of evidence of the studies underpinning this conclusion was not high enough for the conclusion to be definite.
- **Satisfaction of patients, carers and care staff:** Studies tended to favour management at home despite certain problems (method of remuneration, inadequate professional education or training, burden of care and consequences in terms of income for carers). In these studies, the questionnaires used were vague and results depended very much on the sample surveyed.

VIII. Organisational aspects

The DHOS and ANAES have already produced documents and reports on coordination and administration of at-home chemotherapy by professionals, as well as on drugs and medical equipment. For instance, the ministerial order of 20/12/2004 specifies that drugs for at-home chemotherapy should be prepared centrally in a hospital pharmacy and that the procedure is to be managed by a network (organised or informal), on the basis of compliance with a set of specifications (annexed to the order).

Changes in the funding system will be a key factor in allowing at-home administration of chemotherapy to develop. A number of changes have recently taken place (procedures for reimbursing infusion pumps for home use, information for the patient on costs and reimbursement, nursing care plan). Other fee-related measures will be included in the Cancer Plan (introduction of a fixed fee for monitoring of patients by GPs, specific funding for expensive drugs, seeing how a fixed fee for primary care which is paid to the network would work). Finally, in order to standardise reimbursement levels by care service at a national level, new procedures for HAH funding have been put forward as part of the T2A reform.

IX. Conclusions

The data in the literature and in French databases on the comparative costs of the different types of care were not sufficiently precise to support any firm conclusions. In terms of mean costs, the general trend was in favour of at-home care (under an HAH scheme or within a network). Factors related to patient satisfaction and preferences were in favour of care at home. It is not possible to draw any conclusions on patients' state of health according to care service. Major organisational changes are currently underway, particularly concerning fees and tariffs. Most of them are recommendations or projects that have not yet been implemented.

X. Proposals

The working group made the following proposals, based on its own experience, for the development of at-home care:

- The different care services (hospital, HAH, network) are complementary and need to be coordinated. They should not be made to compete nor be used jointly. Certain types of chemotherapy currently given in hospital could be given in the home. The foremost consideration is overall patient care which determines the care service best adapted to the patient's treatment protocol. The issues that need to be clarified relate to cost, staff training and the accountability of those involved at each stage of the care process.

- The existing situation must be taken into account when considering how to develop networks or HAH. A nationwide audit of the resources allocated to chemotherapy - whether in hospital or at home - should be carried out. The optimal distribution of resources needs to be determined according to community needs and existing care structures. Regions with poor provision of HAH structures or networks should develop them as a priority.
- A key factor in the cost of chemotherapy is that of drugs and their preparation. A detailed examination of tariffs is needed, in particular for drug preparation and supply by hospitals for at-home use.
- A survey needs to be designed to assess how widespread at-home chemotherapy is outside an HAH structure or care network.
- The cost of chemotherapy by protocol, in hospital and at home, should be calculated using the analytical accounting systems that HAH schemes and networks are required to introduce.
- Any assessment of chemotherapy at home should include not only costs, but also patients' quality of life and wishes.
- Chemotherapy is not a single isolated component in the treatment of cancer patients. Assessment of total cost per cancer patient is therefore preferable to assessment of just the cost of chemotherapy.

Participants

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