











## Déclaration de liens d'intérêt

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## Dépenses de santé « socialisées »

200 milliards d'euros

80% remboursés



## Dépenses de santé « socialisées »

## 200 milliards d'euros

**95 Mds €** Soins hospitaliers

**55 Mds €** Soins de ville

**32 Mds €** Médicaments

**16 Mds €** Optiques, prothèses, matériel...

**5 Mds €** Transport sanitaire

#### Defining Death

Medical, Legal and Ethical Issues in the Determination of Death



President's Commission for the Study of Ethical Problems in Medicine and Biomedical and Behavioral Research

## The use and costs of Medicare services in the last 2 years of life

by James Lubitz and Ronald Prihoda

This study reports on the use of services by Medicare enrollees who died in 1978. Decedents comprised 5.9 percent of the study group but accounted for 28 percent of Medicare expenditures. The use of services became more intense as death approached. Despite the idea that heroic efforts to prolong life are common, only 6 percent of persons who died had more than \$15,000 in Medicare expenses in their last year of life. As shown here, the unique patterns of health care use by decedents and survivors should be fully understood and considered when contemplating changes in the Medicare program.

#### Introduction

The types and costs of health care services rendered to the dying are currently issues of widespread concern. The concern stems from a belief that care for the dying centers too much around highly technical, cure-oriented services provided in the hospital. Critics hold that insufficient attention is paid to the psychosocial needs of the dying and their families.

Concern also stems from the belief that the cost of care provided in conventional settings may be high, especially when compared with alternatives such as hospice programs (Bloom and Kissick, 1980; Fletcher, 1980; Krant, 1978; Mount, 1976; Ryder and Ross, 1977). Cost concerns are reinforced by studies showing the large proportion of deaths among high-cost hospital patients. Interest has focused on such highcost users of health care, both because such persons are most in need of protection against costs for catastrophic illness, and because of the belief that their experiences may help to provide an understanding of the nature of the continuing escalation of health costs (Birnbaum, 1978; Cullen et al., 1976; Schroeder, Showstack, and Roberts, 1979; Schroeder, Showstack, and Schwartz, 1981; Zook and Moore 1980; Zook, Moore, and Zeckhauser, 1981).

One result of concern about appropriate health care for the dying has been the passage of the Medicare hospice benefit, which took effect in November 1983. Since many advocates of the hospice concept believe that hospice care may be less costly as well as more emotionally and medically beneficial, there is interest in comparing patterns of use of health care in hospices and in conventional settings. The data presented in this article are one source of information about the use of conventional care before death.

Studies of health care expenses in the period before death have differed in methods and populations studied but have found that total expenses (Piro and Lutins, 1973; McCall, to be published) or hospital expenses (Timmer and Kovar, 1971; Scotto and Chiazze, 1976) are much greater for dying persons than for others. Other studies have examined the relationships of age to hospital and nursing home use by dying persons. These studies found that hospital use, as

Reprint requests: James Lubitz, Health Care Financing Administration, 2-C-11 Oak Meadows Building, 6325 Security Boulevard, Baltimore, MD 21207 measured by days of care, was greatest among persons 45-64 years of age who died, and that *nursing home* use was greatest among persons 65 years of age or over who died (Wunderlich and Sutton, 1966). The percent of deaths occurring in hospitals was highest among patients who were under 45 years of age; the percent occurring in nursing homes was highest among individuals 65 years of age or over (Sutton, 1965).

A study of the use of services in the last year of life by cancer patients covered by Blue Cross and Blue Shield found that hospital expenses made up a high proportion of total expenses and that the use of services was especially intense during the last 2 months of life (Gibbs and Newman, 1982). A study of the use of Medicare services by enrollees in the last year of life in Colorado also found intense use of services in the last few months of life (McCall, to be published). Additionally, this study found that persons who died had 6.4 times the average charges per enrollee in their last year as persons who did not dies.

An earlier study of the Medicare population found that people who died during 1967 comprised 5 percent of enrollees but accounted for 22 percent of program expenditures (Piro and Lutins, 1973). That study examined services only for the calendar year in which the enrollee died. A later study with 1979 Medicare data also examined services only in the calendar year in which the enrollee died (Helbing, 1983). It found that 21 percent of Medicare expenditures were for persons who died—almost exactly the same figure found in the Piro and Lutins paper.

This article differs from earlier works on the use of health care in the period before death because it:

- Traces back the use of services for 2 full years before death
- Presents national population-based data (for example, rates per 1,000 enrollees) for both decedents and survivors.
- Presents data on the use of physicians', and other types of services in addition to hospital services.
   This article reports on the use of and Medicare pay-

This article reports on the use of and Medicare payments for services in the last and second-to-last years of life for aged enrollees who died in 1978 (decedents). It contrasts the use of services by decedents with the use by persons who did not die (survivors) to focus on the added use of Medicare services associated with dying. It describes the types, numbers, and costs of services received before death and explores

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April 15, 1993

### THE NEW ENGLAND JOURNAL OF MEDICINE SPECIAL ARTICLE

#### TRENDS IN MEDICARE PAYMENTS IN THE LAST YEAR OF LIFE

JAMES D. LUBITZ, M.P.H., AND GERALD F. RILEY, M.S.P.H.

Abstract Background. Increased attention is being paid to the amount and types of medical services rendered in the period before death. There is a popular impression that a greater share of resources is being devoted to dying patients than in the past. We examined trends in the proportion of Medicare expenditures for persons 65 years old or older in their last year of life to determine whether there were any changes from 1976 to 1986.

Methods. Using Medicare program data for 1976, 1980, 1985, and 1988, we classified Medicare payments according to whether they were made for people in their last year of life (decedents) or for survivors. We also assigned expenses for care in the last year of life according to intervals of 30 days before the person's death and examined trends according to ace.

Results. Reflecting the large overall increase in Medi-

In the past decade there has been a great deal of interest in the circumstances of a person's final days and months and in the amount of health care resources expended in the final year of life. 1-9 In 1978, 28 percent of Medicare program expenditures were accounted for by people in the last year of life. 10 The figure of 28 percent has often been misquoted, with the proportion of expenses for people in the last year of life great greated and misinterpreted to mean that a large percentage of medical expenses are accounted for by terminally ill persons whose lives were prolonged by expensive techniques. 1-1-15

The purpose of this study was to examine the trend in the proportion of all Medicare payments that is accounted for by people in the last year of life, to determine whether the proportion has changed. Since the publication of the 1984 study<sup>10</sup> there have been two major changes in the Medicare program that may affect the amount of Medicare expenditures for those in the last year of life — the prospective payment system for hospitals and the hospice benefit. In addition, there have been changes in the attitudes of society toward care for the dying, such as increased attention to following the wishes of the terminally ill as expressed in advance directives. <sup>16</sup>

Although data on Medicare payments for people in the last year of life cannot be used to identify which expenses were for patients who were clearly terminally ill, monitoring these payments can help identify trends in the care of beneficiaries before death. If payments for people in their last year increased more rapidly than overall Medicare pay-

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The statements contained in this report are solely those of the authors and do not necessarily reflect the views or policies of the Health Care Financing Admin-

care spending, Medicare costs for decedents rose from \$3,488 per person-year in 1976 to \$13,316 in 1988. However, Medicare payments for decedents as a percentage of the total Medicare budget changed little, fluctuating between 27.2 and 30.6 percent during the study period. Payments for care during the last 60 days of life expressed as a percentage of payments for the last year also held steady at about 52 percent. Furthermore, the pattern of lower payments for older as compared with younger decedents also prevalled throughout the study period.

Conclusions. The same forces that have acted to increase overall Medicare expenditures have affected care for both decedents and survivors. There is no evidence that persons in the last year of life account for a larger share of Medicare expenditures than in earlier years. (N Enol J Med 1993:328:1092-6).

ments, more attention to services received in the last months of life might be called for.

#### METHODS

The data used in these analyses came from the Continuous Medicare History Sample, a longitudinal file on a 5 percent random sample of Medicare beneficiares. The data on numbers of beneficiaries and dollars were multiplied by 20 to estimate totals. The file is part of the Medicare Statistical System, which compiles information from Medicare claims submitted by physicians, hospitals, and other providers. New beneficiaries are added to the Continuous Medicare History Sample, and the records of beneficiaries who die are retained in the file. Information on the use of Medicare services and dates of death is periodically added to the records of the benefiand dates of death is periodically added to the records of the benefiand

We obtained comparable data for 1976, 1980, 1985, and 1988 on Medicare payments made on behalf of people in the last year of life. These years were chosen because 1976 was the earliest year for which data were available, and 1988 the latest, at the time the study began. Not all the tables show data for 1980 and 1985, but in no case would the data for those years have altered the conclusion

Our sample included only Medicare beneficiaries 65 years of age or older; enrollees under the age of 65 who were entitled to Medicare because of disability were not included. The sample was restricted to Medicare beneficiaries not enrolled in health main-tenance organizations (HMOs), because the records of use of Medicare services are incomplete for HMO members. The number of persons in our sample was 1,167,966 for 1976, 1,258,702 for 1980, 1,362,099 for 1983, and 1,455,424 for 1988.

The data are limited to payments for services covered by Medicare. Medicare covers hospital inpatient services, skilled-nursing services provided in a qualified skilled-nursing facility after hospitalization, home health services, services by physicians and other medical providers and suppliers, outpatient services (including those provided by hospitals, ambulatory surgical centers, and rural clinics), and hospitec care (since October 1983). Important services not covered by Medicare are nursing home care not qualifying for Medicare payment and outpatient drugs. Medicare paid for only 2 percent of nursing home care in 1986. <sup>19</sup>

#### Assignment of Costs to Decedents and Survivors

For each study year, we assigned Medicare payments either to decedents (persons in their last year of life) or to survivors (all others). In the case of the calendar year 1988, for example, beneficiaries who survived through December 31, 1989, were identified as survivors for 1988. All their person-years of enrollment in 1988 and

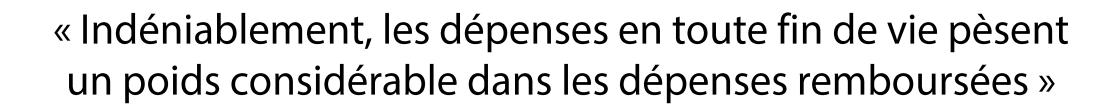
## Le coût du temps ultime

Gérard de Pouvourville

Pour réduire le déficit de l'assurance maladie. ne convient-il pas de s'attaquer aux dépenses de fin de vie ? Selon les données disponibles, elles représenteraient 13% des dépenses remboursées et sont appelées à augmenter. Cette approche « comptable » peut se parer de la vertu de l'éthique, en dénonçant l'inutilité et la cruauté d'un acharnement thérapeutique qui ne tiendrait pas compte d'un besoin de mourir dans la dignité. Une analyse des données disponibles fait apparaître une tout autre vision de la question : il ne semble pas que la part prise par ces dépenses ait augmenté au cours du temps, les efforts les plus coûteux sont engagés pour les personnes âgées de moins de 65 ans, les dépenses les plus importantes sont liées aux pathologies chroniques lourdes, soignées depuis longtemps, où la part de la fin de vie ne représente qu'une petite partie des efforts consentis. Questionner les efforts héroïques des équipes de soins dans les derniers jours de la vie n'est donc peut-être pas une question économique, celle de la remise en cause de la rentabilité collective de l'acharnement thérapeutique, mais bien une question éthique : offrir à chacun le choix de finir sa vie comme il l'entend.

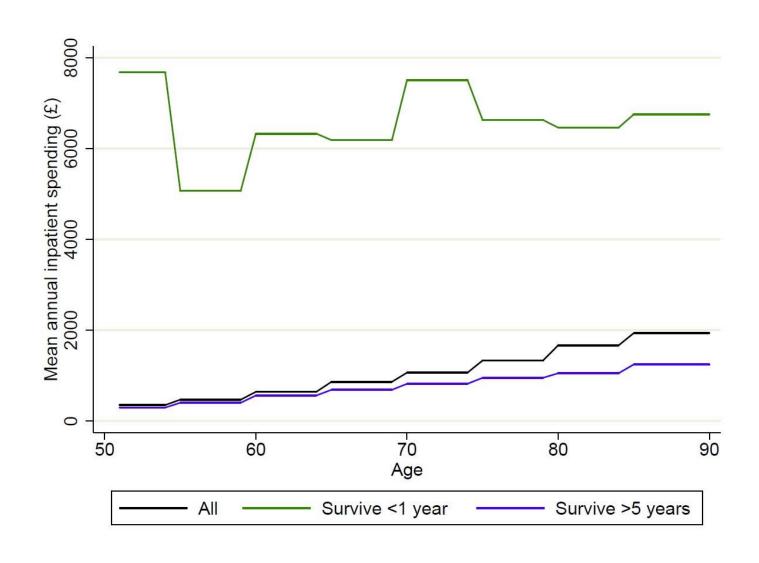
#### LES DÉPENSES EN FIN DE VIE, UN ZOMBIE ?

Dans le culte vaudou, un zombie est un mort que convoque le prêtre du culte au cours d'une cérémonie pour le mettre à son service, mort qui ne cesse donc de revivre pour servir les intérêts des vivants. Robert Evans, économiste de la santé canadien, utilise ce terme pour évoquer les arguments et idées qui reviennent régulièrement dans le débat sur les dépenses de santé et





## Coût moyen des soins hospitaliers



#### The Myth Regarding the High Cost of End-of-Life Care

frequently highlight highly concen-

a small proportion of the population

and promote policy proposals to

identify this "high-cost" group and

significantly reduce its costs. Indeed,

attempting to target chronically ill

and complex patients with cost-

effective interventions.4-10 Yet,

there exist no national, comprehen-

sive patient-level data on the health

care expenditures of the US popu-

lation from which to estimate the

expenditures of the high-cost group.

Lack of comprehensive data is the

primary reason detailed analyses of

this high-cost group have not been

conducted and why misperceptions

The discussion regarding the

high-cost population in the United

population at the end of life, relying

on evidence suggesting that those

at the end of life drive health care

spending.11-17 This evidence is bi-

ased, however, in that most studies

have examined only Medicare ex-

penditures and, therefore, only the

Medicare population. Although

health care for older adults is gen-

erally more costly and the majority

of costs in the last year of life are

exclude the substantial health care

costs paid by Medicaid, private in-

surers, and individuals themselves.

Furthermore, whereas on an indi-

vidual basis the last year of life may

be significantly more expensive

paid by Medicare, such analyses

States has often focused on the

about this group are common.

a wide range of programs are

trated health care costs among

Health care reform debate in the United States is largely focused on the highly concentrated health care costs among a small proportion of the population and policy proposals to identify and target this "high-cost" group. To better understand this population, we conducted an analysis for the Institute of Medicine Committee on Approaching Death using existing national data sets, peer-reviewed literature, and published reports. We estimated that in 2011, among those with the highest costs. only 11% were in their last year of life, and approximately 13% of the \$1,6 trillion spenton personal health care costs in the United States was devoted to care of individuals in their last year of life, Public health interventions to reduce health care costs should target those with long-term chronic conditions and functional limitations, (Am J Public Health, Published online ahead of print October 15, 2015; e1-e5, doi:10, 2105/AJPH.2015.302889)

Melissa D. Aldridge, PhD, MBA, and Amy S. Kelley, MD, MSHS

IN 2011, THE UNITED STATES than preceding years, 18,19 spent \$2.7 trillion on health care. between-individual differences in more than double what was spent in health care costs at any stage in life 2000.1 It is projected that, by 2040, 1 of every 3 dollars spent in the United States will be spent on health care.<sup>2,3</sup> Health care reform debates

outweigh within-individual differences. These substantial limitations of the existing evidence characterizing the high-cost population in the United States may have hindered policymakers' attempts to rein in health care costs.

Here we address this important gap in our understanding of the high-cost population in the United States by providing estimates of total spending among those in the last year of life and describing 3 distinct subgroups within the "highcost" patient population. Our analyses consider contributions from a more comprehensive set of payers than those included in prior studies. Because "total spending" data representing all payers do not exist in a single population-based source. our estimates draw upon a combination of data from existing national data sets (including the Medical Expenditure Panel Survey [MEPS] and the Health and Retirement Study), the peer-reviewed literature and published reports. We also describe the persistence of health care spending across 3 major subsets within the high-cost group. In our opinion, the ability to design policy solutions that target individuals with exceptionally high health care costs is contingent on under-

#### **EXPENDITURES** ALLOCATED TO THE LAST YEAR OF LIFE

standing the characteristics that de-

fine this population and, thus, how

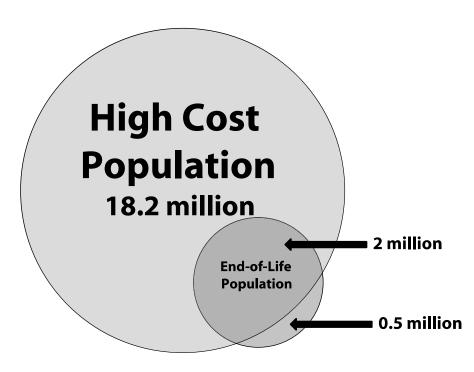
and why they incur such high costs.

To estimate total annual health care expenditures for the US

population, we started with data from the 2011 MEPS, the most comprehensive data set of annual health care expenditures for the community-dwelling US population. An important limitation of the MEPS data, however, is that the sample base represents the civilian noninstitutionalized population and thus excludes residents of long-term care (LTC) facilities. To address this omission, we separately estimated the total annual health care expenditures for LTC facility residents as the sum of expenditures for the care of residents by facilities and expenditures for the care of residents outside of facilities, such as during hospital stays. These estimates were calculated with data from the 2011 National Health Expenditure Accounts,1 adjusted according to the methods of Sing et al.20

We therefore estimated total health care expenditures for the US population in 2011 as \$1627 billion on the basis of 2011 MEPS data<sup>21</sup> (\$1330 billion) and our estimate of expenditures for LTC facility residents (\$297 billion). (Our estimate of \$1.6 trillion is lower than the National Health Expenditure Accounts estimate of \$2.7 trillion, which included expenditure categories unrelated to patient care such as government administration of health care programs, public health initiatives, and revenue from gift shops and hospital cafeterias.)

Of the \$1627 billion spent on health care in 2011, we estimate that approximately 13%, or \$205 billion, was devoted to care of individuals in their last year of life.22 We used the Health and Retirement Study cohort to estimate the



Source. Total population and health care costs were obtained from 2011 Medical Expenditure Panel Survey data<sup>21</sup> adjusted to include the nursing home population.<sup>24</sup> The distribution of total costs for the end-of-life population was estimated from Health and Retirement Study data linked to Medicare claims data, adjusted to include non-Medicare payers<sup>11</sup> and adjusted to 2011 dollars via the Bureau of Labor Statistics Consumer Price Index.

FIGURE 1—Estimated overlap between the population with the highest health care costs and the population at the end of life: United States, 2011.



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Revue d'Épidémiologie et de Santé Publique

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#### Article original

#### Les dépenses de soins remboursés durant la dernière année de vie, en 2008, en France

Reimbursed health expenditures during the last year of life, in 2008, France

P. Ricci\*, M. Mezzarobba, P.O. Blotière, D. Polton

Direction de la stratégie, des études et des statistiques, Caisse nationale de l'assurance maladie, 50, avenue du Pr.-André-Lemierre, 75986 Paris cedex 20, France Reçu le 9 septembre 2011 ; accepté le 16 avril 2012

#### Abstract

Background. — To measure the reimbursed health expenditures in the last year of life and the proportion it represents in total reimbursement costs in 2008, to analyse the structure of such expenditures and to identify costs by cause of death.

Methods. — Data were obtained from the French national insurance information system (SNITRAM). Data from the national hospital discharge database were linked to the outpatient reimbursement database for patients covered by the general health insurance scheme (n = 49 million persons). The cost of the last year of life was calculated for the exhaustive population (361,328 deaths in 2008). The supposed cause of death was mainly derived from the primary diagnosis of the last hospital stay during which the patient died.

Results. - The average reimbursed expenses during the last year of life were estimated at 22,000 s per person in 2008, with 12,500 s accounting for public hospital costs. Reimbursed health expenditures varied according to different medical causes of death: 52,300 s for HIV disease and about 40,000 s for tumors. A negative effect of age on the expenditure during the last year of life was observed. Health care spending increased with shorter time before death, the last month of life corresponding to 28% of reimbursed expenditures during the last year of life. Health care use in the last year of life represented 10.5% of the total health expenditures in 2008.

Conclusion. — This study found results similar to those observed in the past or in other countries. Our results show in particular that the weight of health expenditures during the last year of life on total health expenditures remains stable over the years.

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## 22 000 à 26 000 euros / pers

13,5 milliards €

## 22 000 à 26 000 euros / pers

68% soins hospitaliers

17% soins de ville

15% médicaments

## 22 000 à 26 000 euros / pers

68% soins hospitaliers

17% soins de ville

15% médicaments

21 000 € maladies cardiovasculaires

35 000 € cancers solides

93 000 € insuffisance rénale chronique

#### **ORIGINAL PAPER**



# Evolution of health care utilization and expenditure during the year before death in 2015 among people with cancer: French snds-based cohort study

Audrey Tanguy-Melac<sup>1</sup> · Dorian Verboux<sup>1</sup> · Laurence Pestel<sup>1</sup> · Anne Fagot-Campagna<sup>1</sup> · Philippe Tuppin<sup>1</sup> · Christelle Gastaldi-Ménager<sup>1</sup>

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#### Abstract

**Background** Cancer patients have one of the highest health care expenditures (HCE) at the end of life. However, the growth of HCE at the end of life remains poorly documented in the literature.

**Objective** To describe monthly reimbursed expenditure during the last year of life among cancer patients, by performing detailed analysis according to type of expenditure and the person's age.

**Method** Data were derived from the *Système national des données en santé* (SNDS) [national health data system], which comprises information on ambulatory and hospital care. Analyses focused on general scheme beneficiaries (77% of the French population) treated for cancer who died in 2015.

**Results** Average reimbursed expenditure during the last year of life was €34,300 per person in 2015, including €21,100 (62%) for hospital expenditure. "Short-stays hospital" and "rehabilitation units" stays expenditure were €14,700 and €2000, respectively. Monthly expenditure increased regularly towards the end of life, increasing from 12 months before death €2000 to €5200 1 month before death. The highest levels of expenditure did not concern the oldest people, as average reimbursed expenditure was €50,300 for people 18–59 years versus €25,600 for people 80–90 years. Out-of-pocket payments varied only slightly according to age, but increased towards the end of life.

**Conclusion** A marked growth of HCE was observed during the last 4 months of life, mainly driven by hospital expenditure, with a more marked growth for younger people.

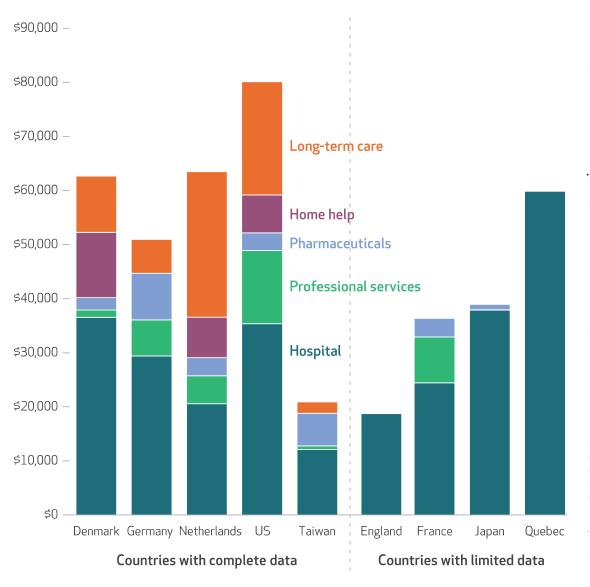
## **Health Affairs**

## End-Of-Life Medical Spending In Last Twelve Months Of Life Is Lower Than Previously Reported

ABSTRACT Although end-of-life medical spending is often viewed as a major component of aggregate medical expenditure, accurate measures of this type of medical spending are scarce. We used detailed health care data for the period 2009–11 from Denmark, England, France, Germany, Japan, the Netherlands, Taiwan, the United States, and the Canadian province of Quebec to measure the composition and magnitude of medical spending in the three years before death. In all nine countries, medical spending at the end of life was high relative to spending at other ages. Spending during the last twelve months of life made up a modest share of aggregate spending, ranging from 8.5 percent in the United States to 11.2 percent in Taiwan, but spending in the last three calendar years of life reached 24.5 percent in Taiwan. This suggests that high aggregate medical spending is due not to last-ditch efforts to save lives but to spending on people with chronic conditions, which are associated with shorter life expectancies.

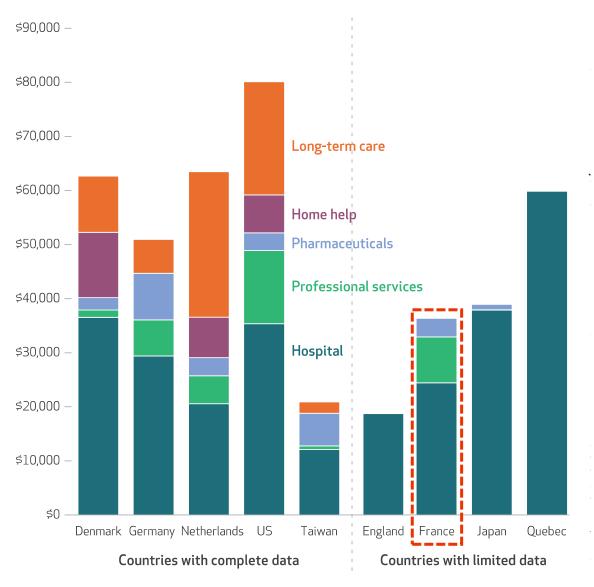
#### EXHIBIT 1

Mean per capita medical spending (in 2014 US dollars) in 9 countries in the last 12 months of life, by category of spending



#### EXHIBIT 1

Mean per capita medical spending (in 2014 US dollars) in 9 countries in the last 12 months of life, by category of spending



# 1/ Quel est le contrefactuel?

# 











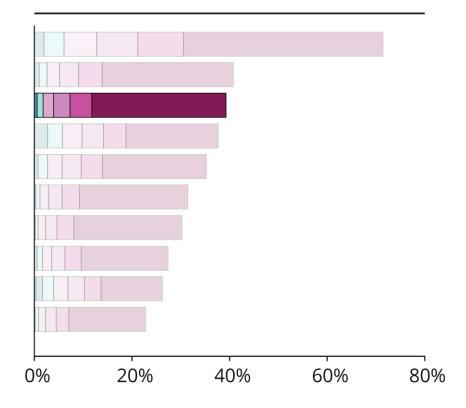


## Chronic condition (Rank)

- 01. Hypertension
- 02. Ischemic heart disease
- 03. Heart failure
- 04. Solid neoplasm
- 05. Depression or mood disease
- 06. Cataract, lens disease
- 07. Atrial fibrillation
- 08. Cerebrovascular disease
- 09. Dementia
- 10. Diabetes

Chronic condition (Rank)	Prevalence rate (%)
01. Hypertension	71.5%
02. Ischemic heart disease	40.7%
03. Heart failure	39.3%
04. Solid neoplasm	37.7%
05. Depression or mood disease	35.3%
06. Cataract, lens disease	31.5%
07. Atrial fibrillation	30.3%
08. Cerebrovascular disease	27.3%
09. Dementia	26.3%
10. Diabetes	22.8%

## Prevalence by number of comorbidities % of all deceased individuals

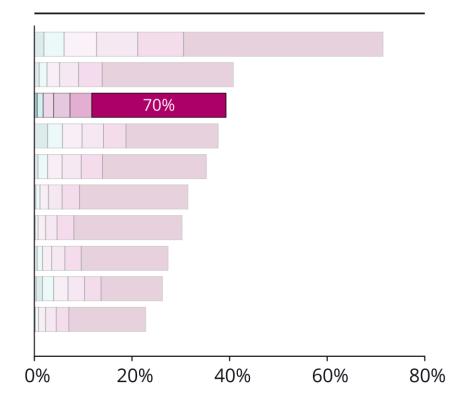


#### Number of co-occurring conditions:



Chronic condition (Rank)	Prevalence rate (%)
01. Hypertension	71.5%
02. Ischemic heart disease	40.7%
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04. Solid neoplasm	37.7%
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07. Atrial fibrillation	30.3%
08. Cerebrovascular disease	27.3%
09. Dementia	26.3%
10. Diabetes	22.8%

## Prevalence by number of comorbidities % of all deceased individuals



#### Number of co-occurring conditions:



# 2/ Payer quoi, pour qui?

Traitements curatifs
Médicaments de prévention secondaire
Médicaments de prévention primaire
Cascade thérapeutique
Confort, soulagement des symptômes



- Hé bien! Messieurs, vous l'avez vu, cette opération qu'on disait impossible a parfaitement réussi
- Mais, Monsieur... la malade est morte...
- Qu'importe! Elle serait bien plus morte sans l'opération

## End-of-life care for hospitalized patients with metastatic melanoma in France: a nationwide, register-based study

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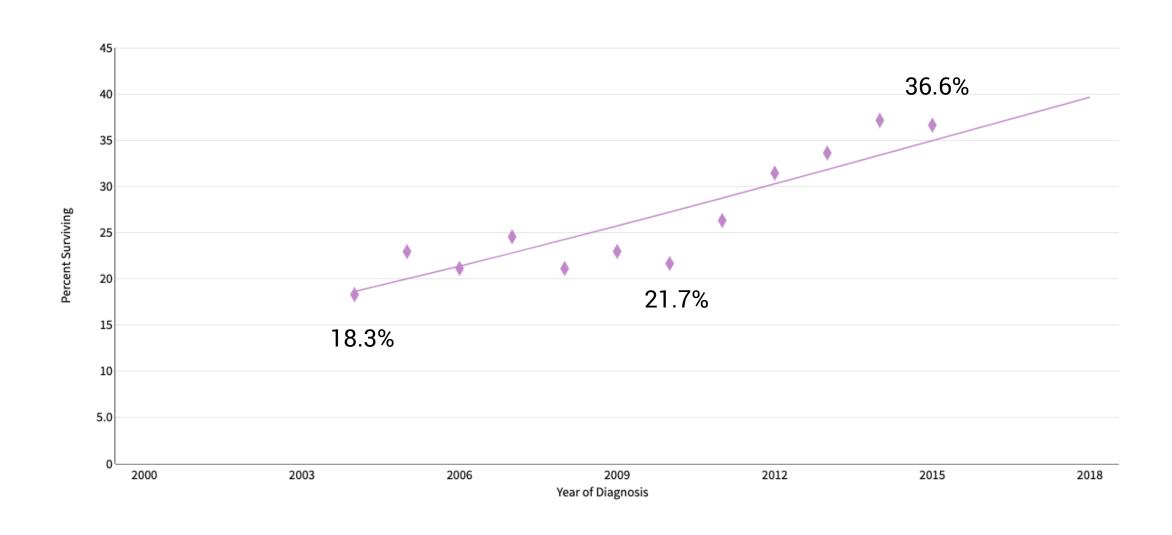
<sup>&</sup>lt;sup>7</sup>Aging Research Center, Karolinska Institutet and Stockholm University, Gävlegatan 16, 11330 Stockholm, Sweden



## 5300 € l'administration

140–240 000 € / patient

## Mélanome métastatique: taux de survie à 5 ans

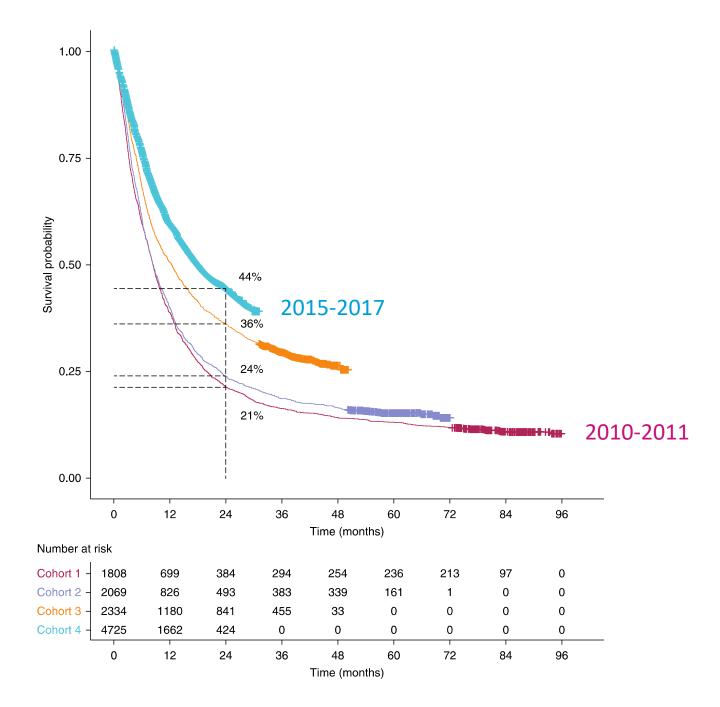


# Patients with Metastatic Melanoma Receiving Anticancer Drugs: Changes in Overall Survival, 2010–2017

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Immune checkpoint inhibitors and targeted therapies have profoundly altered the management of several cancers over the past decade. Metastatic melanoma has been at the forefront of these changes. We provide here a nationwide overview and an assessment of changes in survival in France. We included 10,936 patients receiving a systemic treatment for metastatic cutaneous melanoma between 2010 and 2017 using the French National Health Insurance database (Système National des Données de Santé). Over the study period, there was a doubling of the number of new patients receiving a systemic treatment. Cytotoxic chemotherapy was progressively replaced by targeted therapy and immune checkpoint inhibitors. Patients having initiated a first-line treatment since June 2015 gained 46% overall survival compared with those initiating treatment before 2012. Overall survival at 24 months rose from 21% to 44%. We provide real-world evidence for the improvement of overall survival in the past decade among patients with metastatic melanoma. Although the characteristics of the patients treated can vary across periods, this type of exhaustive real-world data provides evidence from broader populations than those included in clinical trials.

Figure 3. Comparative OS across the four cohorts of patients with advanced melanoma in France (2010-2017). Kaplan-Meier curves for OS are shown per cohort. Cohorts 1-4 correspond to patients receiving a first-line systemic treatment for metastatic melanoma from January 2010 to December 2011, January 2012 to October 2013, November 2013 to May 2015, and June 2015 to December 2017, respectively. As there was no loss to follow-up, all censored patients were individuals who were still alive on 31 December 2017. The 2-year OS was computed for each cohort. OS, overall survival.





### **CLINICAL RESEARCH STUDY**



### **Choosing Wisely? Measuring the Burden of** Medications in Older Adults near the End of Life: Nationwide, Longitudinal Cohort Study

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#### ABSTRACT

BACKGROUND: The burden of medications near the end of life has recently come under scrutiny, because several studies suggested that people with life-limiting illness receive potentially futile treatments.

METHODS: We identified 511,843 older adults (>65 years) who died in Sweden between 2007 and 2013 and reconstructed their drug prescription history for each of the last 12 months of life through the Swedish Prescribed Drug Register. Decedents' characteristics at time of death were assessed through record linkage with the National Patient Register, the Social Services Register, and the Swedish Education

**RESULTS:** Over the course of the final year before death, the proportion of individuals exposed to  $\geq 10$ different drugs rose from 30.3% to 47.2% (P <.001 for trend). Although older adults who died from cancer had the largest increase in the number of drugs (mean difference, 3.37; 95% confidence interval, 3.35 to 3.40), living in an institution was independently associated with a slower escalation ( $\beta = -0.90$ , 95% confidence interval, -0.92 to -0.87). During the final month before death, analgesics (60.8%), antithrom-botic agents (53.8%), diuretics (53.1%), psycholeptics (51.2%), and β-blocking agents (41.1%) were the 5 most commonly used drug classes. Angiotensin-converting enzyme inhibitors and statins were used by, respectively, 21.4% and 15.8% of all individuals during their final month of life.

CONCLUSION: Polypharmacy increases throughout the last year of life of older adults, fueled not only by symptomatic medications but also by long-term preventive treatments of questionable benefit. Clinical guidelines are needed to support physicians in their decision to continue or discontinue medications near the

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KEYWORDS: Elderly; End of life; Medications; Polypharmacy

Funding: See last page of article.

Conflict of Interest: See last page of article Authorship: See last page of article.

Ethical Approval: This study was approved by the Ethical Review Board in Stockholm, Sweden.

Availability of Data and Materials: Clinical data and individual data from the Swedish Prescribed Drugs Register data cannot be made publicly

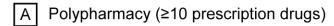
available. Interested researchers can access the aggregated data from the Swedish Prescribed Drugs Register (http://www.socialstyrelsen.se/statistik/ statistikdatahas/lakemedell

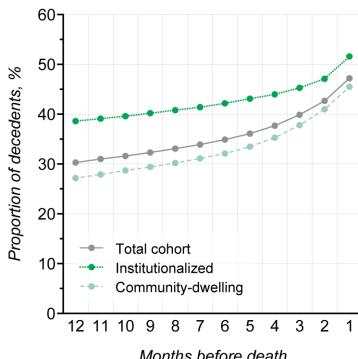
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Months before death





### Original Article

### Preventive Drugs in the Last Year of Life of Older Adults With Cancer: Is There Room for Deprescribing?

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Johan Fastbom, MD, PhD3 and Kristina Johnell, MPharm, PhD1

BACKGROUND: The continuation of preventive drugs among older patients with advanced cancer has come under scrutiny because these drugs are unlikely to achieve their clinical benefit during the patients' remaining litespan. METHODS: A nationwide cohort study of older adults (those aged 3-65 years) with solid tumors who died between 2007 and 20 to was performed in Sweden, using routinely collected data with record linkage. The authors calculated the monthly use and cost of preventive drugs throughout he laist year before the patients' death. RESULTS: Among \$5.20 tolder persons who died with cancer (mean age, 8.13 years) (attandard deviation, 8.19ears)), the average number of drugs increased from 6.3 to 0.1 lover the course of the last year before death. Prevention drugs frequently were continued until the final month of life, including antihypertensives, platelet aggregation inhibitors, anticoagulants, statins, and oral antidiabetics. Median drug costs amounted to \$1482 (interquartile range [IDR], \$700-\$2980]) per prevail in continued and the state of the s

KEYWORDS: deprescribing, drug prescribing, end of life, palliative care.

#### INTRODUCTION

In high-income countries, individuals aged ≥70 years now account for nearly two-thirds of cancer-related deaths.¹ Chronic multimorbidity thushas become the norm rather than the exception in oncology,² and is associated with poorer chances of survival and with a higher burden of functional impairments and physical symptoms.³ Multimorbidity also comes with a higher burden of long-term pharmacological treatments. In the United States and in Europe, approximately 40% of individuals aged ≥ 65 years use ≥ 5 drugs concomitantly.⁴5. This polypharmacy is particularly problematic among older individuals with advanced cancer <sup>6</sup> because the potential to develop serious drug-drug interactions is amplified by the use of anticancer agents and complementary medicines.¹8 Moreover, the probability of experiencing adverse drug reactions increases because the main pharmacokinetic parameters are affected not only by age but also by the physiological impact of cancer (eg, modified drug absorption due to gastrointestinal symptoms or to impairments in the gut wall function, a decrease in the volume of distribution caused by weight loss, or renal impairment due to the nephrotoxicity of chemotherapy), <sup>9,10</sup>

Beyond pharmacology, polypharmacy within the context of advanced cancer also raises important questions from a clinical and ethical viewpoint. As cancer progresses and the prognosis worsens, the net benefit of each additional medicine gradually decreases while the risk of harm increases. This "law of diminishing returns" makes the continuation or initiation of long-term treatments particularly questionable for older patients with advanced cancer. Preventivedrugs are prescribed either to avert or delay the onest of a disease among individuals who are considered to be at high risk of developing that disease in the future (primary prevention), or to avoid the recurrence of a condition that the patient experienced in the past (secondary prevention). These drugs typically need several years before the

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Clinical data and individual data from the Swedish Prescribed Drug Register cannot be made publicly available. However, additional information can be made available upon reasonable request to the authors.

Additional supporting information may be found in the online version of this article.

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Cancer Month 0, 2019

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# Médicaments au cours de la dernière année de vie

	12 <sup>th</sup> month before death	Last month before death	Absolute change
	Percent	Percent	Percent points (95%CI)
Antithrombotic agents	46.6%	48.1%	+1.5 (1.1 to 1.9)
Vitamin K antagonists	7.7%	5.6%	-2.1 (-2.3 to -1.9)
Heparin group	2.7%	10.0%	+7.3 (7.1 to 7.5)
Platelet aggregation inhibitors	37.7%	36.2%	-1.5 (-1.8 to -1.2)
Drugs used in the treatment of hypertension	60.4%	60.1%	-0.3 (-0.6 to 0.0)
Low-ceiling diuretics	6.3%	5.2%	-1.1 (-1.3 to -0.9)
Potassium-sparing agents	7.3%	11.2%	+3.9 (3.7 to 4.1)
Beta blocking agents	37.5%	38.2%	+0.7 (0.4 to 1.0)
Calcium channel blockersd	18.9%	15.9%	-3.0 (-3.3 to -2.7)
ACE inhibitors	20.3%	18.5%	-1.8 (-2.1 to -1.5)
Angiotensin II antagonists	11.7%	9.9%	-1.8 (-2.0 to -1.6)
Lipid modifying agents	21.5%	16.8%	-4.7 (-5.0 to -4.4)
HMG CoA reductase inhibitors	21.0%	16.3%	-4.7 (-5.0 to -4.4)

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	<b>60.4</b> %	60.1%	-0.3 (-0.6 to 0.0)
Low-ceiling diuretics Potassium-sparing agents	6.3%	5.2%	-1.1 (-1.3 to -0.9)
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## THE LANCET

Prevalence, symptom burden, and natural history of deep vein thrombosis in people with advanced cancer in specialist palliative care units (HIDDen): a prospective longitudinal observational study

Clare White\*, Simon I R Noble\*, Max Watson, Flavia Swan, Victoria L Allgar, Eoin Napier, Annmarie Nelson, Jayne McAuley, Jennifer Doherty, Bernadette Lee, Miriam J Johnson





**David Casarett**University of Pennsylvania



# The Science of Choosing Wisely — Overcoming the Therapeutic Illusion

David Casarett, M.D.

In recent years, the United States has seen increasing efforts to reduce inappropriate use of medical treatments and tests. Perhaps the most visible has been the Choosing Wisely campaign, in which medical societies have identified many tests, medications, and treatments that are used inappropriately. The result is recommendations advising against using these interventions or suggesting that they be considered more carefully and discussed with patients.

The success of such efforts, however, may be limited by the tendency of human beings to overestimate the effects of their actions. Psychologists call this phenomenon, which is based on

our tendency to infer causality where none exists, the "illusion of control." In medicine, it may be called the "therapeutic illusion" (a label first applied in 1978 to "the unjustified enthusiasm for treatment on the part of by chance. both patients and doctors"2). When physicians believe that their actions or tools are more effective than they actually are, the results can be unnecessary and costly care. Therefore, I think that efforts to promote more rational decision making will need to address this illusion directly.

The best illustration of the illusion of control comes from studies in which volunteers were asked to figure out how to press a button in order to cause a panel

to light up.<sup>3</sup> The volunteers searched enthusiastically for strategies and were generally confident that they'd succeeded. They didn't know, however, that their success was determined entirely by chance.

The phenomenon has since been described in widely varied settings. Gamblers, for example, consistently overestimate the control they have over outcomes, both in gambling and in everyday life. Their belief leads them to engage in seemingly bizarre or ritualistic behaviors such as throwing dice in a certain way or wearing specific colors. But the illusion of control is widespread, and its effects may be enhanced when people are placed in posi-



# L'illusion thérapeutique

La tendance à croire que nos actions sont plus efficaces qu'elles le sont réellement

(et de sous-estimer l'influence des facteurs sur lesquels nous n'exerçons aucun contrôle)



**David J Beard** University of Oxford

### THE LANCET

Arthroscopic subacromial decompression for subacromial shoulder pain (CSAW): a multicentre, pragmatic, parallel group, placebo-controlled, three-group, randomised surgical trial





David I Beard, Ionathan L Rees, Ionathan A Cook, Ines Rombach, Cushla Cooper, Naomi Merritt, Beverly A Shirkey, Ienny L Donovan, Stephen Gwilym, Julian Savulescu, Jane Moser, Alastair Gray, Marcus Jepson, Irene Tracey, Andrew Judge, Karolina Wartolowska, Andrew J Carr, on behalf of the CSAW Study Group\*

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#### Summary

Background Arthroscopic sub-acromial decompression (decompressing the sub-acromial space by removing bone Lancet 2018; 391; 329-38 spurs and soft tissue arthroscopically) is a common surgery for subacromial shoulder pain, but its effectiveness is uncertain. We did a study to assess its effectiveness and to investigate the mechanism for surgical decompression.

Methods We did a multicentre, randomised, pragmatic, parallel group, placebo-controlled, three-group trial at 32 hospitals in the UK with 51 surgeons. Participants were patients who had subacromial pain for at least 3 months with intact rotator cuff tendons, were eligible for arthroscopic surgery, and had previously completed a non-operative management programme that included exercise therapy and at least one steroid injection. Exclusion criteria included a full-thickness torn rotator cuff. We randomly assigned participants (1:1:1) to arthroscopic subacromial decompression, investigational arthroscopy only, or no treatment (attendance of one reassessment appointment with a specialist shoulder clinician 3 months after study entry, but no intervention). Arthroscopy only was a placebo as the essential surgical element (bone and soft tissue removal) was omitted. We did the randomisation with a computer-generated minimisation system. In the surgical intervention groups, patients were not told which type of surgery they were receiving (to ensure masking). Patients were followed up at 6 months and 1 year after randomisation; surgeons coordinated their waiting lists to schedule surgeries as close as possible to randomisation. The primary outcome was the Oxford Shoulder Score (0 [worst] to 48 [best]) at 6 months, analysed by intention to treat. The sample size calculation was based upon a target difference of 4.5 points (SD 9.0). This trial has been registered at ClinicalTrials.gov, number NCT01623011.

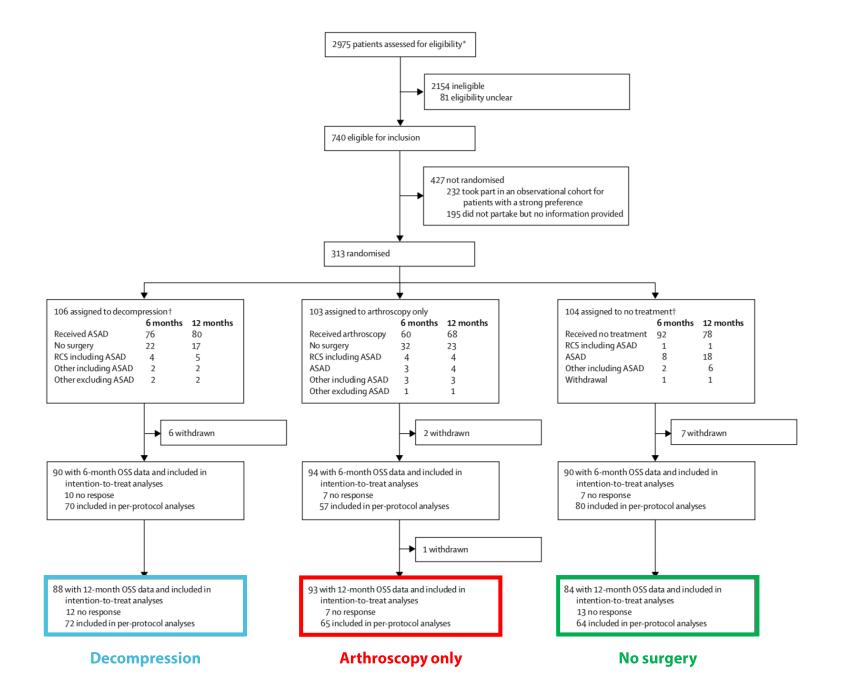
Findings Between Sept 14, 2012, and June 16, 2015, we randomly assigned 313 patients to treatment groups (106 to decompression surgery, 103 to arthroscopy only, and 104 to no treatment). 24 [23%], 43 [42%], and 12 [12%] of the decompression, arthroscopy only, and no treatment groups, respectively, did not receive their assigned treatment by 6 months. At 6 months, data for the Oxford Shoulder Score were available for 90 patients assigned to decompression, 94 to arthroscopy, and 90 to no treatment. Mean Oxford Shoulder Score did not differ between the two surgical groups at 6 months (decompression mean 32.7 points [SD 11.6] vs arthroscopy mean 34.2 points [9.2]; mean difference -1.3 points (95% CI -3.9 to 1.3, p=0.3141). Both surgical groups showed a small benefit over no treatment (mean 29 · 4 points [SD 11 · 9], mean difference vs decompression 2 · 8 points [95% CI 0 · 5-5 · 2], p=0 · 0186; mean difference vs arthroscopy 4·2 [1·8-6·6], p=0·0014) but these differences were not clinically important. There were six studyrelated complications that were all frozen shoulders (in two patients in each group).

Interpretation Surgical groups had better outcomes for shoulder pain and function compared with no treatment but this difference was not clinically important. Additionally, surgical decompression appeared to offer no extra benefit over arthroscopy only. The difference between the surgical groups and no treatment might be the result of, for instance, a placebo effect or postoperative physiotherapy. The findings question the value of this operation for these indications, and this should be communicated to patients during the shared treatment decision-making process.

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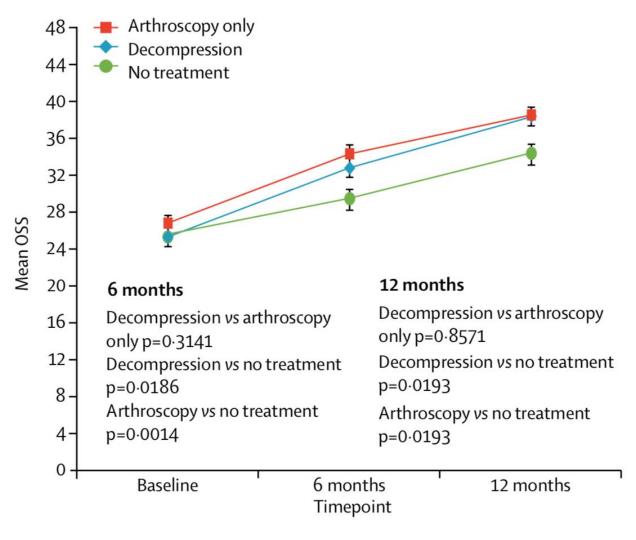
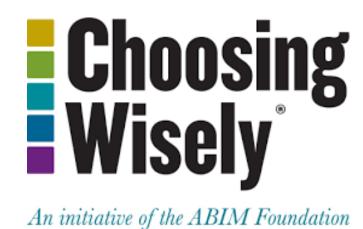


Figure 2: Oxford Shoulder Score in the intention-to-treat analyses Data are mean (95% CI) shown at follow-up timepoints. OSS=Oxford Shoulder Score.



Choisir avec soin



# Dépenses liées aux soins palliatifs

Soins palliatifs « de recours » : 1,7 milliards €

dont Unités de Soins Palliatifs: ~340 millions € dont Lits Identifiés de Soins Palliatifs: ~800 millions € dont Equipes Mobiles de Soins Palliatifs: ~140 millions €

Auxquels il faut ajouter les soins palliatifs intégrés...



# Les soins palliatifs allègent-ils la dépense?

Malheureusement pour nous... pas vraiment.

JAMA Internal Medicine | Original Investigation

### Economics of Palliative Care for Hospitalized Adults With Serious Illness A Meta-analysis

Peter May, PhD; Charles Normand, DPhil; J. Brian Cassel, PhD; Egidio Del Fabbro, MD; Robert L. Fine, MD; Reagan Menz; Corey A. Morrison; Joan D. Penrod, PhD; Chessie Robinson, MA; R. Sean Morrison, MD

IMPORTANCE Economics of care for adults with serious illness is a policy priority worldwide. Palliative care may lower costs for hospitalized adults, but the evidence has important limitations.

**OBJECTIVE** To estimate the association of palliative care consultation (PCC) with direct hospital costs for adults with serious illness.

**DATA SOURCES** Systematic searches of the Embase, PsycINFO, CENTRAL, PubMed, CINAHL, and EconLit databases were performed for English-language journal articles using keywords in the domains of palliative care (eg, *palliative*, *terminal*) and economics (eg, *cost*, *utilization*), with limiters for *hospital* and *consultation*. For Embase, PsycINFO, and CENTRAL, we searched without a time limitation. For PubMed, CINAHL, and EconLit, we searched for articles published after August 1, 2013. Data analysis was performed from April 8, 2017, to September 16, 2017.

**STUDY SELECTION** Economic evaluations of interdisciplinary PCC for hospitalized adults with at least 1 of 7 illnesses (cancer; heart, liver, or kidney failure; chronic obstructive pulmonary disease; AIDS/HIV; or selected neurodegenerative conditions) in the hospital inpatient setting vs usual care only, controlling for a minimum list of confounders.

DATA EXTRACTION AND SYNTHESIS Eight eligible studies were identified, all cohort studies, of which 6 provided sufficient information for inclusion. The study estimated the association of PCC within 3 days of admission with direct hospital costs for each sample and for subsamples defined by primary diagnoses and number of comorbidities at admission, controlling for confounding with an instrumental variable when available and otherwise propensity score weighting. Treatment effect estimates were pooled in the meta-analysis.

Supplemental content



**Cochrane** Database of Systematic Reviews

The effectiveness and cost-effectiveness of hospital-based specialist palliative care for adults with advanced illness and their caregivers (Review)

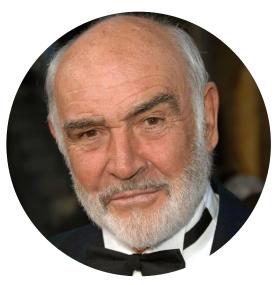
Bajwah S, Oluyase AO, Yi D, Gao W, Evans CJ, Grande G, Todd C, Costantini M, Murtagh FE, Higginson IJ



# Sur 13 essais randomisés qui ont comparé le coût des services de soins palliatifs hospitaliers:

- 9 études ne trouvent aucune difference de coût
- 2 études rapportent des dépenses plus faibles avec les soins palliatifs
- 1 étude donne des résultats non-concluants
- 1 étude rapporte des coûts d'hospitalisation plus faible mais des coûts totaux similaires

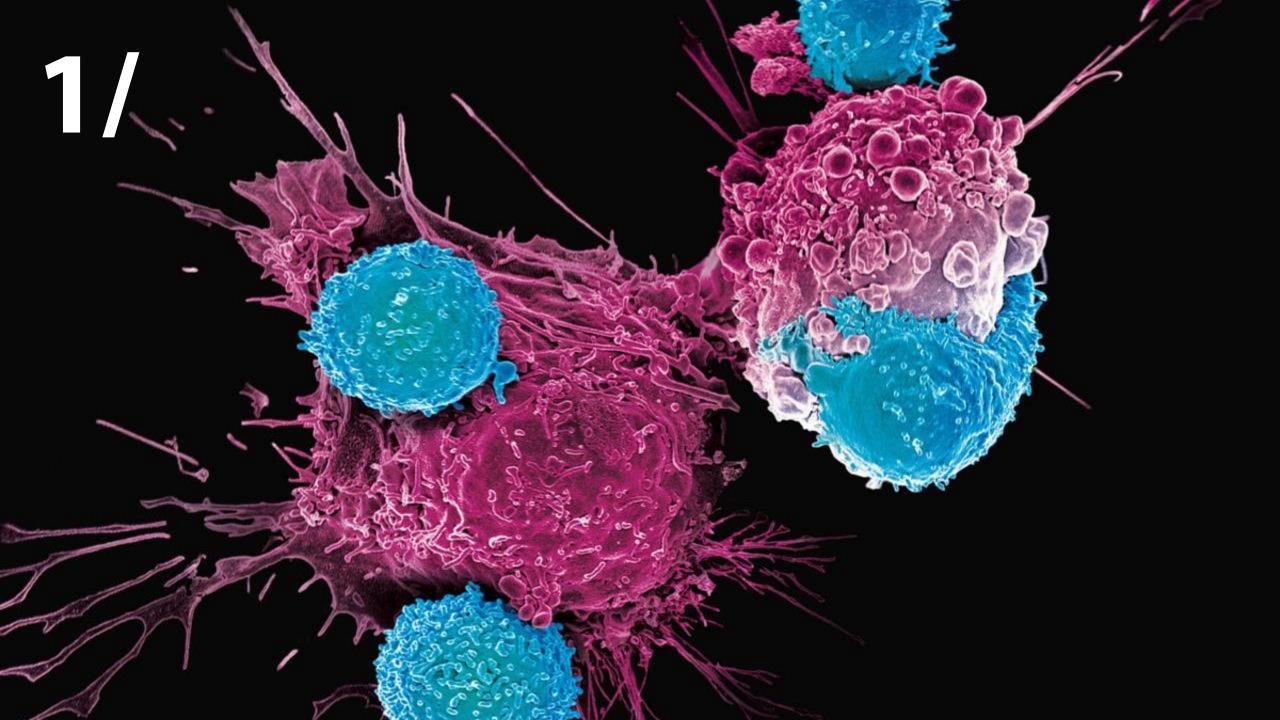






La question n'est pas tant de savoir si l'accompagnement de la fin de vie coûte cher que de savoir ce que l'on propose aux patients avec les ressources dont on dispose.

# **Questions ouvertes**

















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