

HOSPITALISATION AND MANAGEMENT COSTS OF PATIENTS WITH ANAL CANCER IN FRANCE

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BACKGROUND

- Literature about the epidemiology and management costs of anal cancer (AC) in Europe is scarce. Its incidence has been estimated between 1/100,000 to 2.2/100,000 in Europe¹.
- Like cancers of the cervix, Human papillomavirus (HPV) has been reported as a risk factor for development of AC. About 90% of AC may be caused by HPV².
- To date, no data is available to report the burden of this cancer in France.

OBJECTIVE

This study aimed to assess the annual number of patients hospitalised for anal cancer and carcinoma in situ and to estimate the economic burden associated with their management in France.

METHODS

Data sources

- **French National Hospital Database (PMSI)**, which records all admissions to public and private hospitals in France: A retrospective analysis was conducted to assess the annual number and management of patients hospitalised for AC.
- **SAE database (Statistiques Annuelles des Etablissements de santé)**: Radiotherapy sessions performed in private hospitals were extracted there since they are not recorded in the PMSI.
- **Literature review**: Outpatient costs were estimated using distribution of inpatient/outpatient stays (63%/37%) for colorectal cancers³. Indirect costs were based on assumptions from INCA report⁴: 91% of patients stop working because of their anal cancer and mean number of work days lost was 120.

Data extraction

- All hospital stays for anal cancer and anal carcinoma in situ (CIS) (ICD10 codes C21 and D01.3) were extracted for the year 2006. Records included both inpatient and day-hospital admissions
- Chemotherapy/radiotherapy sessions (codes Z51.0 and/or Z51.1) performed for anal cancer and CIS were extracted.
- Patients: considering that one patient can be admitted more than once in hospital during a year, all extracted stays were linked in order to estimate an annual number of hospitalised patients.

Cost evaluation

- All costs were considered from the healthcare payer perspective.
- Costs of admissions were based on DRGs (Diagnosis Related Groups) which are different according to the sector considered:
 - **Public sector**: official 2007 DRG tariffs for public hospitals
 - **Private sector**: official 2007 DRG tariffs for private hospitals to which physician's fees were added (from the 2004 private reimbursement database).

RESULTS

Annual number of hospitalised patients in 2006

- **3,711 and 115 patients** were hospitalised for AC and anal CIS respectively.

Table 1. Annual number of hospital stays and patients

	Number of stays	Day hospital setting (% of stays)	Mean length of stay (days)	Number of patients	Private sector (% of patients)
Anal cancer	4,118	57.5	5.3	3,711	49
Anal CIS	125	68	1.7	115	61

- **69% of AC patients and 51% of anal CIS patients** were females.

Figure 1a. Age distribution of patients with anal cancer

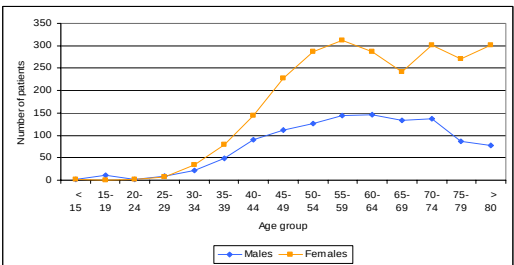
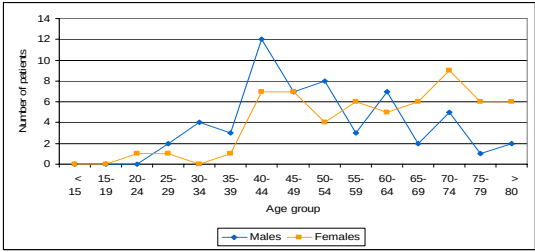


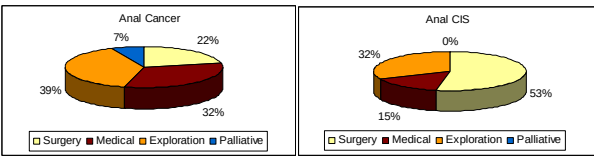
Figure 1b. Age distribution of patients with anal carcinoma in situ



Hospital management

- Most of the hospital stays for AC and anal CIS corresponded to exploratory and surgical procedures.

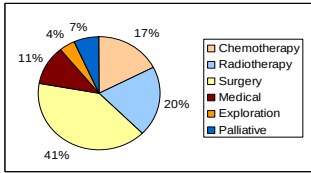
Figure 2. Hospital stays distribution per category of care



Mean hospital cost per patient per year

- In **public hospitals**, the mean cost per patient with anal cancer was **€6,228**. In the **private sector**, this cost was **€4,695**.
- In **public hospitals**, the mean cost per patient with anal CIS was **€2,444**. In the **private sector**, this cost was **€932**.

Figure 3. Distribution of hospital cost for AC by category of care



Total annual cost of patients with anal cancer and anal CIS

- **Total annual cost of anal cancers** management in France was estimated to be **€38.2 million**. Most of this cost was linked to hospitalisations.
- **Annual hospitalisation cost** of anal CIS was estimated to be **€179,000**. It does not include outpatient and productivity loss costs

Table 2. Total annual costs

	COSTS (€)			
	Hospitalisation	Outpatient	Indirect	TOTAL
Anal cancer	20,326,868 (53%)	11,956,981 (31%)	5,966,132 (16%)	38,249,981
Anal CIS	178,672	Not estimated	Not estimated	Not estimated

Annual burden of HPV-related anal cancer and anal CIS

Considering that 88% and 93% of AC and anal CIS respectively may be associated with HPV infections², **total annual cost of HPV-related anal cancer** was estimated to be almost **€34 million**.

Table 3. Annual burden of HPV-related diseases

	% HPV positive	Annual number of HPV-related cases	Hospital costs (€)	TOTAL cost (€)
Anal cancer	88%	3,266	17,887,644	33,659,983
Anal CIS	93%	107	165,986	Not estimated

CONCLUSION

- The economic burden of anal cancer in France appears to be high.
- The mean cost for private and public hospitals were quite different, this could be explained by higher official tariffs for public hospitals due to the fact that they fulfil more activities (e.g. research, education).
- Further research is needed to assess the outpatient burden of patients with anal lesions.
- With the expected arrival of HPV vaccine efficacy data, these data could provide useful information for decision-makers.