

MANAGEMENT COSTS OF PATIENTS WITH VULVAR AND VAGINAL CANCER IN FRANCE

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BACKGROUND

- Almost 27,000 women worldwide, among whom about 16,000 in developed countries, are diagnosed with vulvar cancer each year¹.
- Similarly, 13,200 women, including 4,200 in developed countries, are diagnosed with vaginal cancer annually¹.
- About 40% of vulvar cancers and 70% of vaginal cancers may be linked to Human Papillomavirus (HPV)².
- In France, the economic burden of vulvar and vaginal cancers and dysplasia remains poorly documented.

OBJECTIVE

The objective of this study was to assess the economic burden associated with management (including hospitalisation, outpatient and daily allowances costs) of vulvar and vaginal cancers and dysplasia (VIN, VaIN) in France.

METHODS

Data sources

- **French National Hospital Database (PMSI)**, which records all hospital admissions to public and private hospitals in France (<http://www.atih.sante.fr/>).
- **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.
- **French National Cancer Institute report³**: A published report on cancers costs in France³ was used to assess outpatient costs and daily allowance costs (include only the fraction paid by the Healthcare payer).

Data extraction from PMSI database

- **All hospital stays** (inpatient and day-hospital admissions) and **chemotherapy / radiotherapy sessions** corresponding to vulvar & vaginal diseases were extracted for the year 2006.
- **Hospitalised 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) associated to each hospital stay and their official 2007 tariffs for public and private hospitals. Physician's fees were added to DRGs costs for private hospitals.

RESULTS

Annual number of hospitalised patients in 2006

1,237 and 728 patients were hospitalised for vulvar and vaginal cancers respectively in 2006.

Table 1. Annual number of hospital stays, sessions and patients

	Number of stays	Mean length of stay (days)	Number of sessions*	Number of patients	Private sector (% of patients)
Vulvar cancer	1,478	9.2	3,786	1,237	33%
Vulvar dysplasia	701		0	623	
VIN1	65	0.8	0	59	36%
VIN2/3-CIS	570	2.5	0	500	
Vaginal cancer	903	7.0	2,482	728	33%
Vaginal dysplasia:	268		1	244	
VaIN1	63	0.6	0	61	43%
VaIN2/3-CIS	168	1.8	1	153	

*Include chemotherapy and radiotherapy sessions

Hospital management of patients with vulvar and vaginal cancers

Most DRGs associated with treatment of vulvar cancer (table 2a) were surgical procedures whereas vaginal cancer (table 2b) was rather managed with medical treatments.

Table 2a. Five most common DRGs linked to treatment of vulvar cancers

	DRG Code	Description	Total number (%)
Vulvar cancer	13C08W	Procedures on vulva, vagina or cervix, age>69y and/or complications/morbidity	228 (17%)
	13C14V	Pelvic exenteration, hysterectomies or vulvectomy for malignant tumours without complications	210 (16%)
	24C27Z	Procedures on vulva, vagina and cervix: stays <2 days	160 (12%)
	13C08V	Procedures on vulva, vagina or cervix, age<70y without complications/morbidity	140 (10%)
	13M03V	Malignant tumours of female genital tract without complications/morbidity	107 (8%)

Table 2b. Five most common DRGs linked to treatment of vaginal cancers

	DRG Code	Description	Total number (%)
Vaginal cancer	13M03V	Malignant tumours of female genital tract without complications/morbidity	111 (13%)
	24M27Z	CMD17 conditions: stays <2 days, without surgical procedures	95 (11%)
	13C08V	Procedures on vulva, vagina or cervix, age<70y without complications/morbidity	41 (5%)
	24C27Z	Procedures on vulva, vagina and cervix: stays <2 days	29 (3%)
	13M03W	Malignant tumours of female genital tract with complications/morbidity	23 (3%)

Annual hospitalisation cost of vulvar and vaginal diseases

Annual hospitalisation cost of vulvar and vaginal diseases was estimated to be **€6.7 million** and **€4.3 million** respectively (table 3).

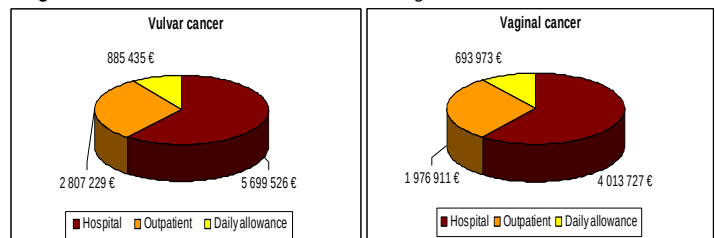
Table 3. Hospitalisation costs of vulvar and vaginal diseases

	Mean cost per patient (€) Public sector	Mean cost per patient (€) Private sector	Annual hospitalisation cost (€)
Vulvar cancer	5,688	2,523	5,699,526
Vulvar dysplasia			1,000,592
VIN1	1,140	630	53,993
VIN2/3-CIS	1,890	1,446	870,781
Vaginal cancer	5,503	5,529	4,013,727
Vaginal dysplasia			320,758
VaIN1	1,162	546	48,698
VaIN2/3-CIS	1,893	916	230,542

Annual management cost of patients with vulvar and vaginal cancers

Total management cost of vulvar and vaginal cancers (including hospitalisation, outpatient and daily allowance) was estimated to be **€9.4 million** and **€6.7 million** respectively.

Figure 1. Total cost distribution for vulvar and vaginal cancers



Annual burden of HPV-related vulvar and vaginal diseases

Total annual cost of HPV-related vulvar and vaginal cancers was estimated to be **€3.4 million** and **€4.8 million** respectively (table 4).

Table 4. Annual burden of HPV-related vulvar and vaginal diseases

	% HPV ²	Number of HPV-related cases	Hospitalisation cost (€)	Total cost (€)
Vulvar cancer	36%	445	2,051,829	3,381,188
Vaginal cancer	72%	524	2,889,884	4,812,920
VIN	76%	473	760,450	NA
VaIN	93%	227	298,305	NA

CONCLUSION

- The economic burden of vulvar and vaginal cancers and dysplasia in France is substantial.
- The burden of vulvar and vaginal precancerous lesions is underestimated since most of them may be managed in an outpatient setting. Further research is needed to assess the outpatient burden of these lesions.
- The quadrivalent HPV vaccine is indicated for the prevention of precancerous genital lesions (cervical, vulvar and vaginal), cervical cancer and external genital warts related to HPV types 6, 11, 16 and 18.
- Prevention of vulvar and vaginal precancerous lesions by prophylactic vaccination would significantly reduce the number of cases and economic burden of these diseases.