SUPPLEMENTAL MATERIAL.

Duration of sick leave after same day discharge for lower extremity arterial disease and varicose vein interventions in French active patients, 2013-16: observational study

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Population

Patient and Public Involvement

No patient involved. Data were extracted from the French national health data system (SNDS), which covers 98.8% of the 66 million people in the French population. The SNDS contains anonymous and individual health insurance users' data with demographic characteristics and all reimbursed care, including outpatient medical care, ambulatory consultations, and hospitalisation discharge data

Inclusion criteria

The population of interest was the French workforce population aged 18 to 65 years-old. All incident patients who underwent angioplasty for lower extremity aretial disease (LEAD N=30238) or varicose vein interventions (N=265670) between January 1st, 2013 and June 30st, 2016 were included. Clinical selection criteria were based on hospital discharge principal diagnosis identified by International Classification of Diseases, 10th Revision (IDC10) codes and surgical procedures identified by a hierarchical, structured, fine-grained, multi-axial procedure nomenclature, namely the French Classification Commune Des Actes Medicaux (CCAM or Common Classification of Medical Procedures) (Table A1 and Table A2). Outpatient setting was synonymous to one-day intervention (day-case) where patient stayed less than 12 hours in a hospital with same day discharge, coming from home in early morning and leaving back home in late afternoon. For comparison purposes, and following health regulatory agencies' guidelines, inpatient whose hospital length of stay was longer that 10 days for an endovascular procedure (N=1636) and 3 days for a varicose veins' intervention were excluded (N=11413) (Appendix Figure 1 and Figure 2)(High Authority of Health 2014). Patients who were not prescribed a sick leave within 30 days following the intervention were excluded (65% of varicose patients and 84% of LEAD patients, respectively). The high proportion of patients without sick leave prescription might be related to some long-term invalidity or sick leave prescribed more than 30 days prior intervention, or the self-employed status of the patient who do not receive compensation from the French national fund. Finally, the population of varicose patients included 83448 subjects (9463 inpatients – 11%- and 73985 outpatients – 89%) and the population of LEAD patients included 6192 subjects (5901 inpatients – 94.3%- and 291 outpatients – 4.7%).

Table I Codes of principal diagnosis (ICD10) and medical procedure (CCAM) for algorithm selection of LEAD patients

ICD10	LABEL FR	LABEL EN
I74.0	Embolie et thrombose de l'aorte abdominale	Embolism and thrombosis of abdominal aorta
I74.3	Embolie et thrombose des artères des membres inférieurs	Embolism and thrombosis of arteries of lower extremities
I70.2	Athérosclérose des artères distales	Atherosclerosis of arteries of extremities
I74.4	Embolie et thrombose des artères distales, sans précision	Embolism and thrombosis of arteries of extremities, unspecified
I73.9	Maladie vasculaire périphérique, sans précision	Peripheral vascular disease, unspecified
I74.5	Emoblie et thrombose de l'artère iliaque	Embolism and thrombosis of iliac artery
CCAM	**LABEL FR**	**LABEL EN**
DGLF001	Pose d'endoprothèse couverte bifurquée aortobisiliaque, par voie artérielle transcutanée	Aortobisiliac bifurcated stent-graft stent placement by transcutaneous arterial approach
DGLF002	Pose d'endoprothèse couverte aorto-uniiliaque, par voie artérielle transcutanée	Aorto-uniiliac covered stent, transcutaneous arterial
EDAF003	Dilatation intraluminale de l'artère iliaque commune et/ou de l'artère iliaque externe avec pose d'endoprothèse, par voie artérielle transcutanée	Intraluminal dilatation of the common iliac artery and / or external iliac artery with stenting, by transcutaneous arterial approach
EDAF006	Dilatation intraluminale de l'artère iliaque interne avec pose d'endoprothèse, par voie artérielle transcutanée	Intraluminal dilatation of the internal iliac artery with stenting, transcutaneous artery
EDLF004	Pose d'endoprothèse couverte dans l'artère iliaque commune et/ou l'artère iliaque externe avec embolisation de l'artère iliaque interne, par voie artérielle transcutanée	Stent-graft placement in the common iliac artery and / or the external iliac artery with embolization of the internal iliac artery by transcutaneous arterial delivery
EDLF007	Pose d'endoprothèse couverte dans l'artère iliaque interne ou une branche extradigestive de l'aorte abdominale, par voie artérielle transcutanée	Stent-graft placement in the internal iliac artery or extradigestive branch of the abdominal aorta via the transcutaneous arterial approach
EDPF006	Recanalisation de l'artère iliaque commune et/ou de l'artère iliaque externe avec pose d'endoprothèse couverte, par voie artérielle transcutanée	Recanalization of the common iliac artery and / or the external iliac artery with stent graft placement, transcutaneous arterial
EEAF002	Dilatation intraluminale d'une artère du membre inférieur avec dilatation intraluminale de l'artère iliaque commune et/ou de l'artère iliaque	Intraluminal dilatation of a lower extremity artery with intraluminal dilatation of the common iliac artery and / or the ipsilateral external iliac

	externe homolatérale avec pose d'endoprothèse, par voie artérielle transcutanée	artery with stenting, by the transcutaneous arterial approach
EEAF004	Dilatation intraluminale d'une artère du membre inférieur avec pose d'endoprothèse, par voie artérielle transcutanée	Intraluminal dilatation of a lower extremity artery with stent grafting by transcutaneous arterial artery
EEAF006	Dilatation intraluminale de plusieurs artères du membre inférieur avec pose d'endoprothèse, par voie artérielle transcutanée	Dilatation intraluminale de plusieurs artères du membre inférieur avec pose d'endoprothèse, par voie artérielle transcutanée
EELF002	Pose d'endoprothèse couverte dans une artère du membre inférieur, par voie artérielle transcutanée	Stent-graft placement in lower extremity artery via transcutaneous arterial approach
EEPF001	Recanalisation d'une artère du membre inférieur avec pose d'endoprothèse, par voie artérielle transcutanée	Recanalization of a lower extremity artery with stenting, by transcutaneous arterial approach

Table II Codes of principal diagnosis (ICD10) and medical procedure (CCAM) for algorithm selection of varicose veins patients

ICD10	LABEL FR	LABEL EN
I87.2	Insuffisance veineuse	Varicose veins of lower extremities without ulcer or inflammation
I83.9	Varices des membres inférieurs sans ulcère ou inflammation	Varicose veins of lower extremities with inflammation
I83.2	Varices des membres inférieurs, avec ulcère et inflammation	Varicose veins of lower extremities with ulcer
I83.1	Varices des membres inférieurs, avec inflammation	Varicose veins of lower extremities with both ulcer and inflammation
I83.0	Varices ulcérées	Venous insufficiency (chronic) (peripheral)
CCAM	**LABEL FR**	**LABEL EN**
EJSA001	Ligature de plusieurs veines perforantes jambières, par abord direct	Ligature of several perforating veins leggings, by direct approach
EJGA001	Extraction [Stripping] de la petite veine saphène, par abord direct	Extraction [Stripping] of the small saphenous vein, by direct approach
EJFA004	Exérèse de la crosse de la petite veine saphène, par abord direct	Excision of the arch of the small saphenous vein, by direct approach
EJFA007	Exérèse de la crosse de la grande veine saphène, par abord direct	Excision of the arch of the long saphenous vein, by direct approach
EJGA002	Extraction [Stripping] de la grande veine saphène, par abord direct	Extraction [Stripping] of the long saphenous vein, by direct approach
EJGA003	Extraction [Stripping] de la grande veine saphène et de la petite veine saphène, par abord direct	Extraction [Stripping] of the long and the small saphenous veins, by direct approach
EJFB001	Séance d'exérèse de segment de varice ou de veine perforante du membre inférieur, par voie transcutanée sous anesthésie locale	Excision of segment of varicose vein or perforating vein of the lower limb, by transcutaneous approach under local anesthesia
EJFA006	Exérèse secondaire de la crosse de la grande veine saphène ou de la petite veine saphène, par abord direct	Excision of the arch of the long or the small saphenous veins, by direct approach
EJFA002	Exérèses multiples de branches de la grande veine saphène et/ou de la petite veine saphène sous anesthésie générale ou locorégionale, par abord direct	Multiple excisions of branches of the long saphenous vein and / or small saphenous vein under general or locoregional anesthesia, by direct approach

Exclusion criteria

For comparison purposes, and following health authorities' guidelines, inpatient whose hospital length of stay was longer that 10 days for an angioplasty (N=) and 3 days for a varicose veins' intervention were excluded (N=). Moreover, patients who were not prescribed a sick leave within 180 days months following the surgery were excluded (Figure 1 and Figure 2).

Coordination of care

Continuity of Care Index (COCI) – the index measures the dispersion of visits, which quantifies the number or percentage of visits to same provider. COCI range between 0 and 1, with 1 indicating the patient always consults the same healthcare provider.

$$COCI = \frac{(\sum_{j=1}^{M} n_j^2) - N}{N(N-1)}$$ Equation 1

where N = total number of visits

nj: number of visits to the *j*th different provider, j = 1, 2… M

Continuity of Prescription Index (COPI) – the index measures the dispersion of prescriber, which quantifies the number or percentage of prescription delivered by the same provider. COPI range between 0 and 1, with 1 indicating that the prescription is always delivered by the same healthcare provider

$$COPI = \frac{(\sum_{i=1}^{K} p_i^2) - P}{P(P-1)}$$ Equation 2

where P = total number of prescription

p: number of prescription by the *j*th different prescriber, i = 1, 2… K

Statistical analysis

Comorbidity profiles

Table III. Comorbidities profile of the active population with varicose vein diseases, in France in 2013-2016

*	inpatient (N=9463)	/1000	outpatient (N=73985)	/1000
MI	16	0.10	41	0.03
CHF	30	0.19	45	0.04
PVD	34	0.21	83	0.07
Stroke	18	0.11	79	0.06
Dementia	1	0.01	2	0.00
Pulmonary	135	0.84	466	0.37
Rheumatic	15	0.09	64	0.05
PUD	10	0.06	51	0.04
LiverMild	33	0.21	92	0.07
DM	222	1.38	512	0.41
DMcx	32	0.20	53	0.04
Paralysis	6	0.04	23	0.02
Renal	9	0.06	24	0.02
Cancer	32	0.20	164	0.13
LiverSevere	8	0.05	14	0.01
Mets	4	0.02	22	0.02
HIV	10	0.06	22	0.02

*MI: Myocardial Infraction; CHF: Congestive Heat Failaure; PVD: Peripheral Vascular Disease; Stroke: Cerebrovascular Disease; Pulmonary: Chronic Pulmonary Disease; Rheumatic: Connective Tissue Diesase-Rheumatic Disease; PUD: Peptic Ulcer Disease; LiverMild: Mild Liver Disease; DM : Diabetes without complications; DMcx : Diabetes with complications; Paralysis: Paraplegia and Hemiplegia; LiverSevere: Moderate to severe liver disease; Mets: Metastatic Carcinoma; HIV: HIV/AIDS.

** Note that a patient may have more than one comorbidity

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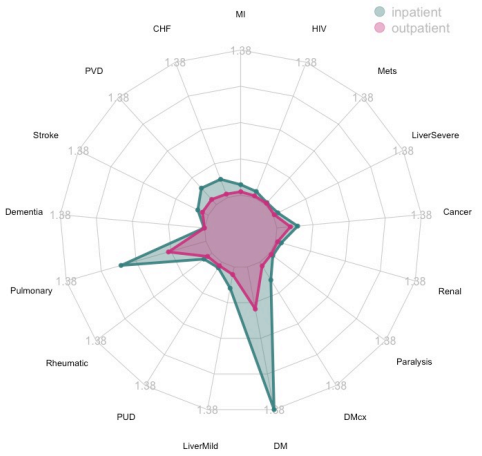

Figure 1. Comorbidities profile of the active population with varicose vein disease (per 1000 inpatiants or outpatients). MI: Myocardial Infraction; CHF: Congestive Heat Failaure; PVD: Peripheral Vascular Disease; Stroke: Cerebrovascular Disease; Pulmonary: Chronic Pulmonary Disease; Rheumatic: Connective Tissue Diesase-Rheumatic Disease; PUD: Peptic Ulcer Disease; LiverMild: Mild Liver Disease; DM : Diabetes without complications; DMcx : Diabetes with complications; Paralysis: Paraplegia and Hemiplegia; LiverSevere: Moderate to severe liver disease; Mets: Metastatic Carcinoma; HIV: HIV/AIDS.

Table IV. Comorbidities profile of the active population with LEAD, in France in 2013-2016

\	inpatient (N=5901).	/1000	outpatient (N=291)	/1000
MI	334	3.33	11	2.22
CHF	312	3.11	13	2.63
PVD	4209	41.96	182	36.79
Stroke	256	2.55	8	1.62
Dementia	3	0.03	0	0.00
Pulmonary	481	4.79	11	2.22
Rheumatic	11	0.11	1	0.20
PUD	21	0.21	1	0.20
LiverMild	65	0.65	4	0.81
DM	391	3.90	9	1.82
DMcx	410	4.09	13	2.63
Paralysis	30	0.30	0	0.00
Renal	86	0.86	2	0.40
Cancer	123	1.23	8	1.62
LiverSevere	11	0.11	0	0.00
Mets	38	0.38	3	0.61
HIV	24	0.24	2	0.40

*MI: Myocardial Infraction; CHF: Congestive Heart Failaure; PVD: Peripheral Vascular Disease; Stroke: Cerebrovascular Disease; Pulmonary: Chronic Pulmonary Disease; Rheumatic: Connective Tissue Diesase-Rheumatic Disease; PUD: Peptic Ulcer Disease; LiverMild: Mild Liver Disease; DM : Diabetes without complications; DMcx : Diabetes with complications; Paralysis: Paraplegia and Hemiplegia; LiverSevere: Moderate to severe liver disease; Mets: Metastatic Carcinoma; HIV: HIV/AIDS.

** Note that a patient may have more than one comorbidity

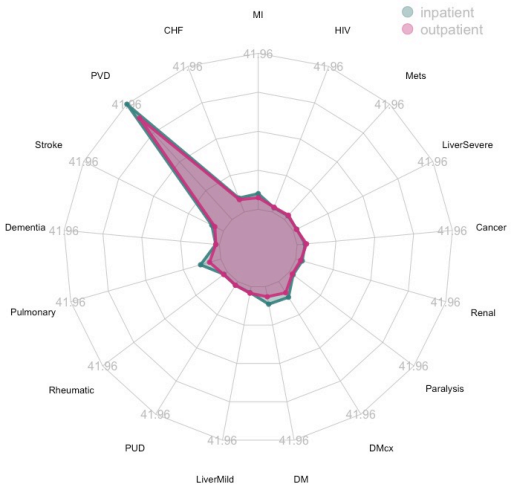

Figure 2. Comorbidities profile of the active population with LEAD (per 1000 inpatiants or outpatients). MI: Myocardial Infraction; CHF: Congestive Heat Failaure; PVD: Peripheral Vascular Disease; Stroke: Cerebrovascular Disease; Pulmonary: Chronic Pulmonary Disease; Rheumatic: Connective Tissue Diesase-Rheumatic Disease; PUD: Peptic Ulcer Disease; LiverMild: Mild Liver Disease; DM : Diabetes without complications; DMcx : Diabetes with complications; Paralysis: Paraplegia and Hemiplegia; LiverSevere: Moderate to severe liver disease; Mets: Metastatic Carcinoma; HIV: HIV/AIDS.

Determinants sick leaves duration and renewals for varicose vein patients

Table V. Incidence rate ratio for determinants of the cumulated duration of sick leaves after varicose vein intervention, in France in 2013-2016

\	Estimate	2.5 %	97.5 %	p-value
(Intercept)	53.70	51.83	55.64	< 2e-16
Age ref. [18-39]				
[40,60[	1.14	1.13	1.16	< 2e-16
[60,65[	1.33	1.29	1.38	< 2e-16
Sex ref. Male	1.00	0.99	1.01	0.81391
Comorbidity ref. none				
[1-2]	1.36	1.31	1.41	< 2e-16
3	1.99	1.65	2.42	1.93e-12
4	2.12	1.43	3.31	0.000407
>4	2.01	1.65	2.49	2.64e-11
Setting ref. Inpatient	0.87	0.85	0.88	< 2e-16
Prescriptors ref. GP				
Hospital	0.57	0.56	0.58	< 2e-16
Other	1.24	1.17	1.31	1.07e-13
Specialist	0.61	0.60	0.63	< 2e-16
Coordination indices				
coci	1.38	1.35	1.41	< 2e-16
copi	0.65	0.64	0.67	< 2e-16

Table VI. Incidence rate ratio for determinant of the renewal of sick leaves after varicose vein intervention, in France in 2013-2016

\	Estimate	2.5 %	97.5 %	p-value
(Intercept)	6.74	6.61	6.87	< 0.001
Age ref. [18-39]				
[40,60[	1.07	1.06	1.09	< 0.001
[60,65[	1.17	1.14	1.19	< 0.001
Sex ref. Male	0.98	0.97	0.99	< 0.001
Comorbidity ref. none				
[1-2]	1.23	1.20	1.26	< 0.001
3	1.54	1.37	1.74	< 0.001
4	1.90	1.51	2.42	< 0.001
>4	1.59	1.40	1.81	< 0.001
Setting ref. Inpatient	0.91	0.90	0.92	< 0.001
Prescriptors ref. GP				
Hospital	0.82	0.81	0.83	< 0.001
Other	1.41	1.37	1.45	< 0.001
Specialist	0.74	0.73	0.74	< 0.001
Coordination indices				
coci	1.29	1.27	1.31	< 0.001
copi	0.79	0.78	0.81	< 0.001

Table VII. Comparison of inpatients and outpatients COPI and COCI statistics after varicose vein intervention, in France in 2013-2016

AMBU	n	median	average	sd	min	max	p-value
COCI							
0	8750	0.5000000	0.5161439	0.3215104	0.0	1	< 2.2e-16
1	67666	0.4666667	0.4785970	0.3337189	0.0	1	
COPI							
0	8750	0.5555556	0.6033501	0.3573928	-0.5	1	< 2.2e-16
1	67666	0.8000000	0.6813231	0.3618581	-0.5	1	

coci-copi r correlation = -0.05

Outpatients have lower percentage of visits to the same group of providers (average COCI= 0.47 vs 0.52), probably synonimous of tighter coordination which is not inconsitent with greater percentage of prescription delivered by the same group of providers, reduicing the overall cumulated days and renewals of sick leaves.

Determinants sick leaves duration and renewals for LEAD patiets

Table VIII. Incidence rate ratio for determinant of the cumulated duration of sick leaves after angioplasty for lower extremity arterial disease, in France in 2013-2016

\	Estimate	2.5 %	97.5 %	p-value
(Intercept)	28.42	22.26	36.80	< 0.001
Age ref. [18-39]				
[40,60)	1.17	0.92	1.46	0.20
[60,65)	1.12	0.87	1.42	0.37
Sex ref. Male	0.98	0.91	1.05	0.53
Comorbidity ref. none				
[1-2]	1.12	1.05	1.19	< 0.001
3	1.40	1.26	1.55	< 0.001
4	1.53	1.32	1.78	< 0.001
>4	1.52	1.31	1.77	< 0.001
Setting ref. Inpatient	0.87	0.77	0.98	0.02
Prescriptors ref. GP				
Hospital	0.71	0.67	0.75	< 0.001
Other	1.37	1.10	1.73	0.01
Specialist	0.71	0.65	0.77	< 0.001
Coordination indices				
coci	1.12	1.02	1.23.	0.01
copi	3.43	3.11	3.79	< 0.001

* *statistically significant*

Table IX. Incidence rate ratio for determinant of the number of renewals of sick leaves after angioplasty for lower extremity arterial disease, in France in 2013-2016

\	Estimate	2.5 %	97.5 %	p-value
(Intercept)	5.97	5.21	6.85	0.00
Age ref. [18-39]				
[40,60)	1.10	0.96	1.25	0.16
[60,65)	1.01	0.88	1.15	0.94
Sex ref. Male	0.95	0.91	0.98	0.01
Comorbidity ref. none				
[1-2]	1.07	1.04	1.11	< 0.001
3.	1.24	1.17	1.31	< 0.001
4.	1.24	1.15	1.35	< 0.001
>4.	1.23	1.13	1.34	< 0.001
Setting ref. Inpatient	0.95	0.89	1.02	0.18
Prescriptors ref. GP				
Hospital	0.85	0.83	0.88	< 0.001
Other	1.29	1.17	1.41	< 0.001
Specialist	0.84	0.81	0.88	< 0.001
Coordination indices				
coci	1.10	1.04	1.15	< 0.001
copi	2.06	1.96	2.16	< 0.001

Table X. COPI and COCI statistics after angioplasty for lower extremity arterial disease, in France in 2013-2016

AMBU	n	median	average	sd	min	max	p-value
COCI							
0	5041	0.5357143	0.5729896	0.2966465	0.0	1	0.6327
1	235	0.5000000	0.5630898	0.3040998	0.0	1	
COPI							
0	5041	0.5238095	0.5203114	0.3715545	-0.5	1	0.1506
1	235	0.6000000	0.5580041	0.3926373	-0.5	1	

- NS: T-test

coci-copi r correlation = 0.09

Outpatients and inpatients have different patterns for COCI and COPI.