SOS AORTA
A 24/7 program for Aortic Emergencies in « Ile de France »

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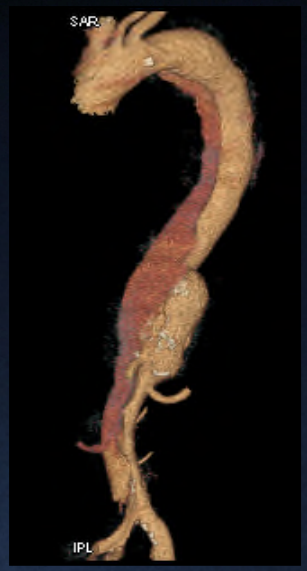
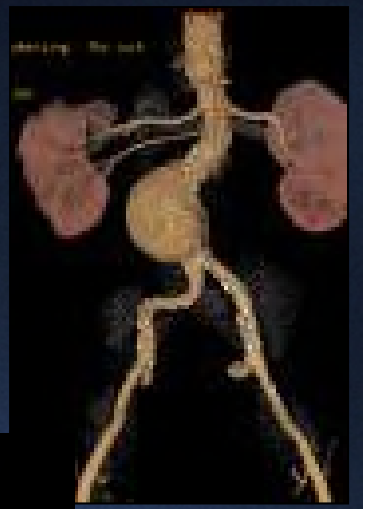
Suspected or confirmed aortic emergencies

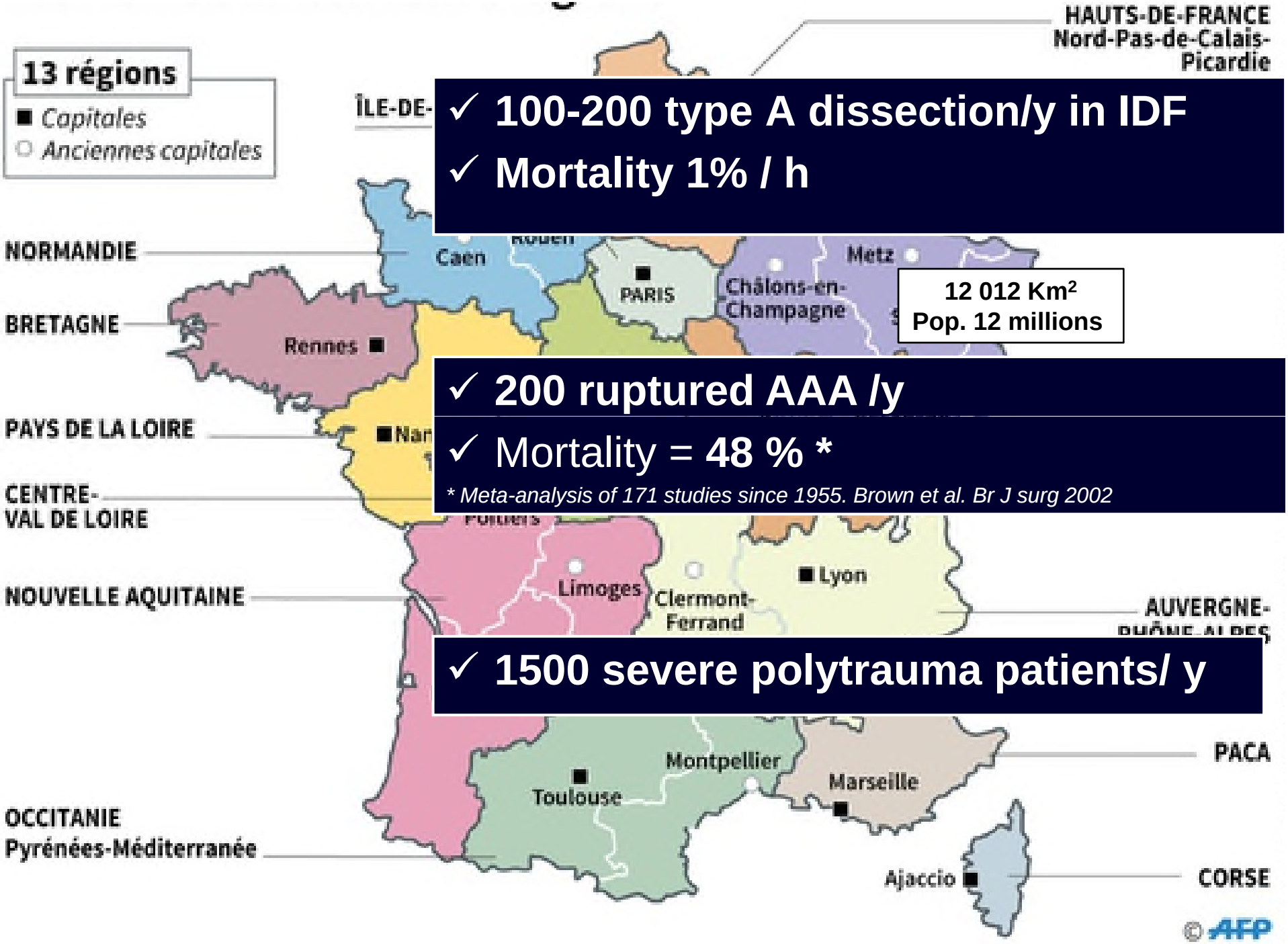
- ✓ Acute aortic syndroms





- ✓ Complicated or symptomatic aortic aneurysms

- ✓ Traumatic aortic rupture



✓ **100-200 type A dissection/y in IDF**

✓ **Mortality 1% / h**

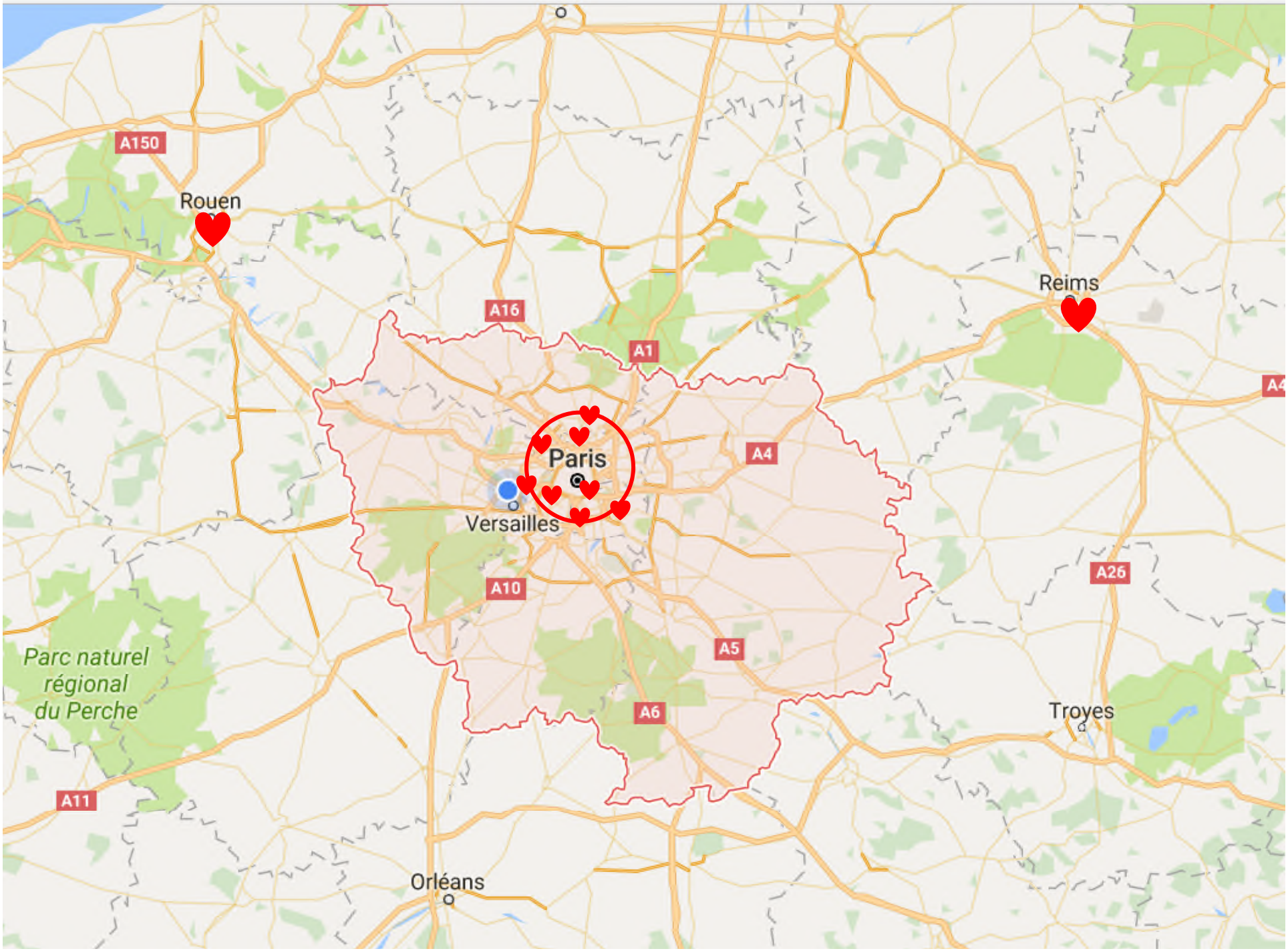
12 012 Km²
Pop. 12 millions

✓ **200 ruptured AAA /y**

✓ Mortality = **48 % ***

** Meta-analysis of 171 studies since 1955. Brown et al. Br J surg 2002*

✓ **1500 severe polytrauma patients/ y**


A150
Rouen
A16
A1
Reims
A4
Paris
A4
Versailles
A10
A26
A5
Parc naturel
régional
du Perche
A6
Troyes
A11
Orléans

MEDECIN
SAMU
SAMU
Berck
Beaujon
Bichat
Bernard
Bretonneau
Lariboisière
F. Widal
R. Debré
St. Louis
Hôtel-Dieu
La Collégiale
Necker
Enfants Malades
HAD
Cochin
Broca
La Rochefoucauld
Salpêtrière
St. Antoine
Rothschild
Tenon
Avicenne
J. Verdier
R. Poincaré
A. Béclère
Ch. Foix
Bicêtre
H. Mondor
A. Chenevier
P. Brousse
E. Roux
HEGP
Hôpitaux de court séjour
Soins de suite et de réadaptation
Soins de longue durée

Before SOS Aorta

- ✓ Cases are scattered around different hospitals
- ✓ Lower case-volume per hospital …. longer learning curve …
- ✓ Multidisciplinary approach is not available in most of these hospitals

Before SOS Aorta

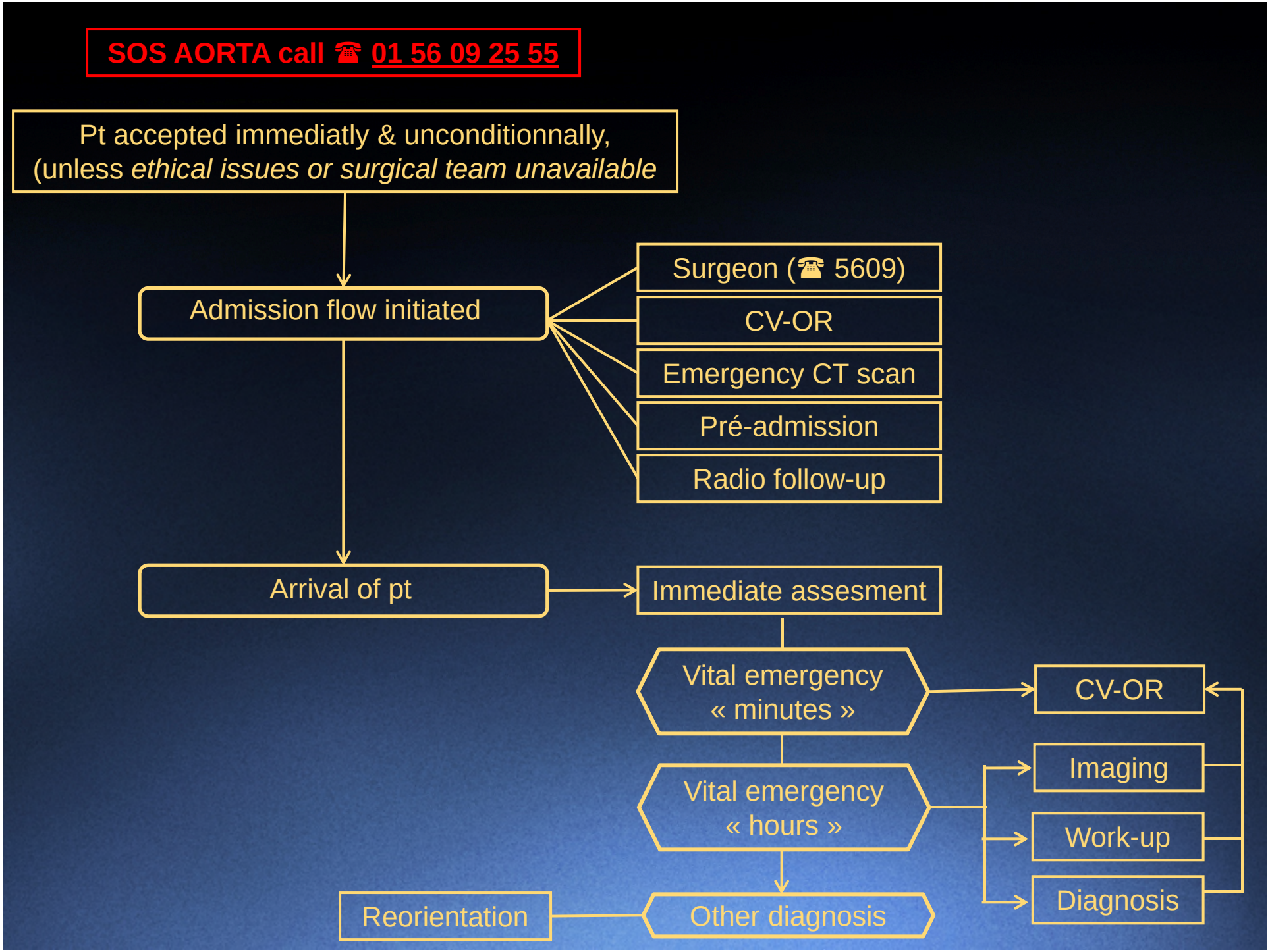
- ✓ No defined contact nor phone number
- ✓ No dedicated unit
- ✓ No decisionnal algorythms
- ✓ No standardized diagnosis workup or treatment
- ✓ Loss of time… loss of means …

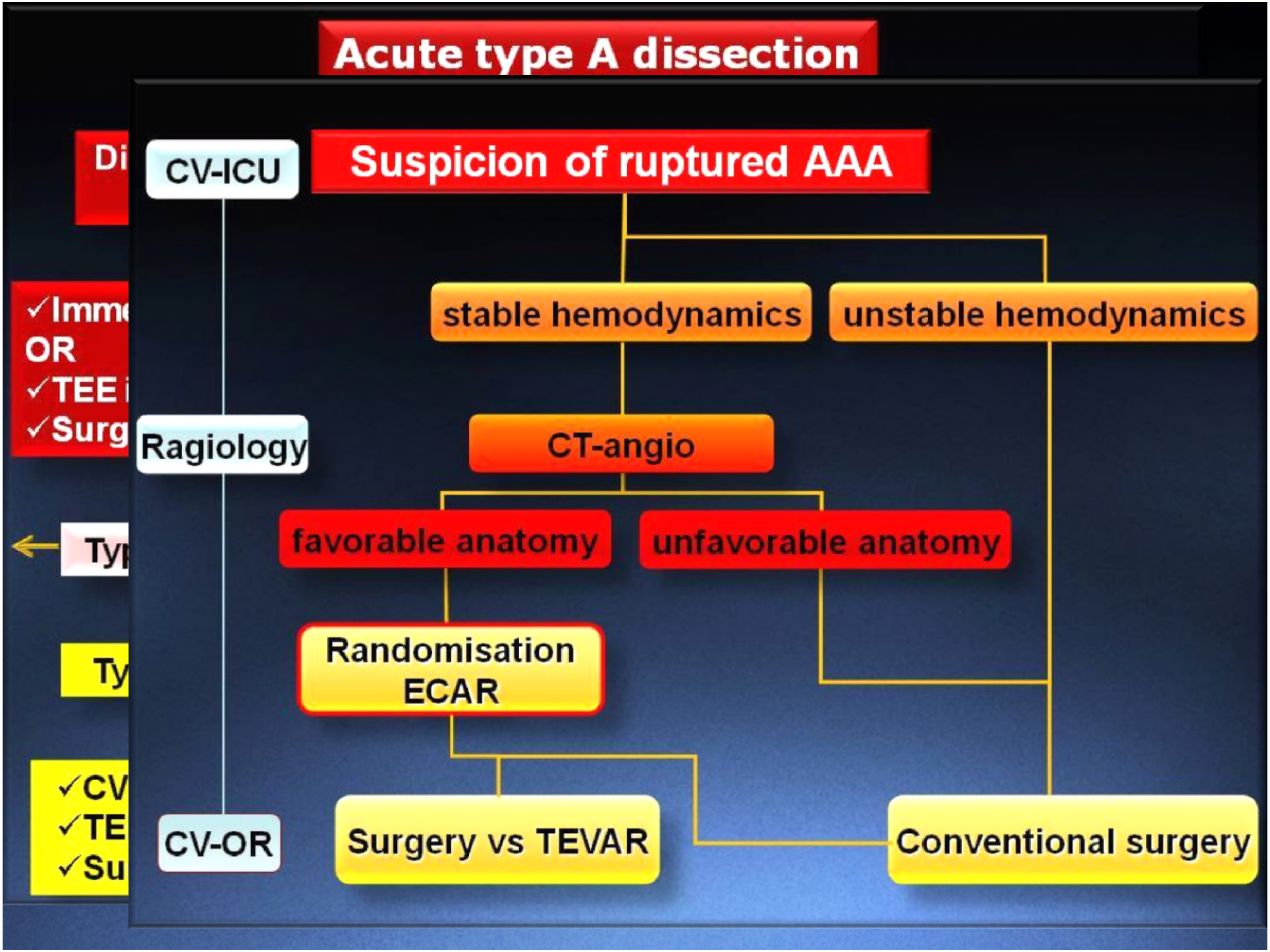
… loss of lives?

SOS Aorta

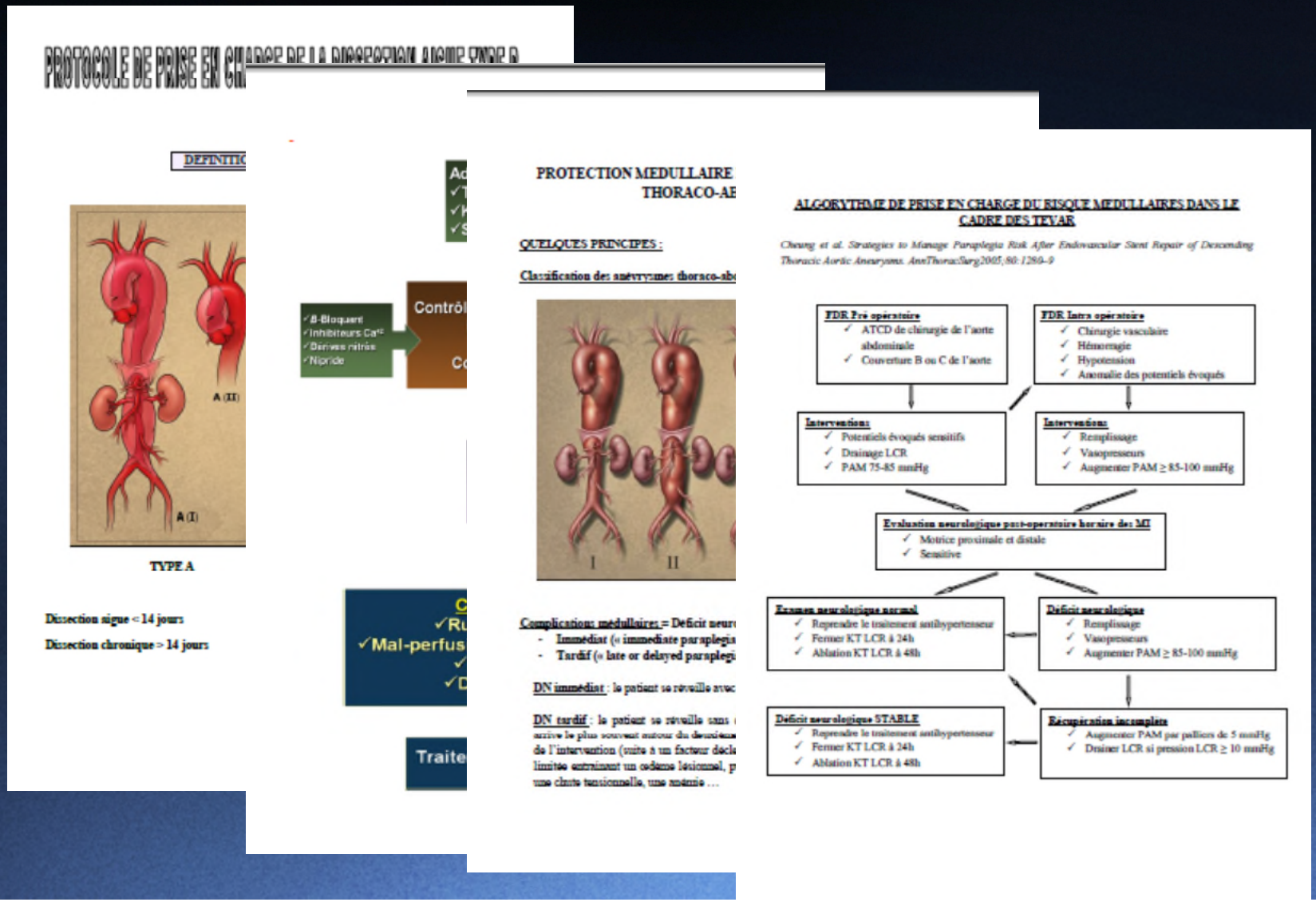
- ☎ 01 56 09 25 55: One phone number, dedicated to aortic emergencies, 24/7 (senior physician)
- SSPI (Trauma Unit) : One dedicated admission Centre, specialized in dealing with vital emergencies & unstable patients
- On-call senior aortic/CV surgeon, with a dedicated phone number ✆ 56 09
- CV-ICU : Dedicated cardiovascular ICU
- On-site lifeflights

- Multidisciplinary approach cardiovascular surgeon, endovascular surgeon, cardiologists, on-site anesthesist, cardiovascular radiologists…) …


SOS AORTA call ☎ 01 56 09 25 55
Pt accepted immediatly & unconditionnally,
(unless ethical issues or surgical team unavailable
Admission flow initiated
Surgeon (☎ 5609)
CV-OR
Emergency CT scan
Pré-admission
Radio follow-up
Arrival of pt
Immediate assesment
Vital emergency
« minutes »
CV-OR
Vital emergency
« hours »
Imaging
Work-up
Diagnosis
Reorientation
Other diagnosis

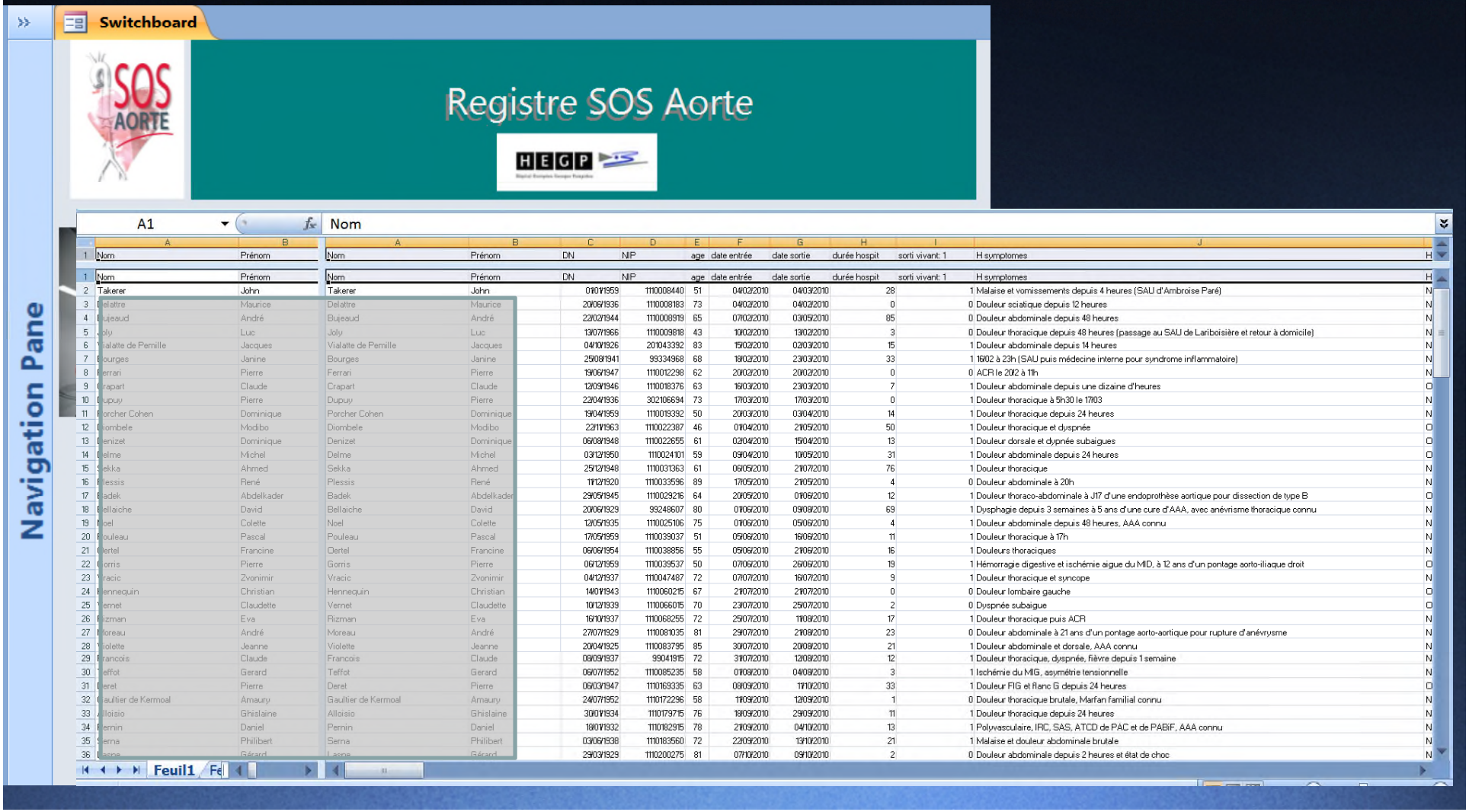

Acute type A dissection
Di
CV-ICU
Suspicion of ruptured AAA
✓Imme
OR
✓TEE
✓Surg
stable hemodynamics
unstable hemodynamics
Ragiology
CT-angio
Typ
favorable anatomy
unfavorable anatomy
Ty
Randomisation
ECAR
✓CV
✓TE
✓Su
CV-OR
Surgery vs TEVAR
Conventional surgery

Treatment protocoles



SOS Aorte

- Prospective registry since Feb 2010

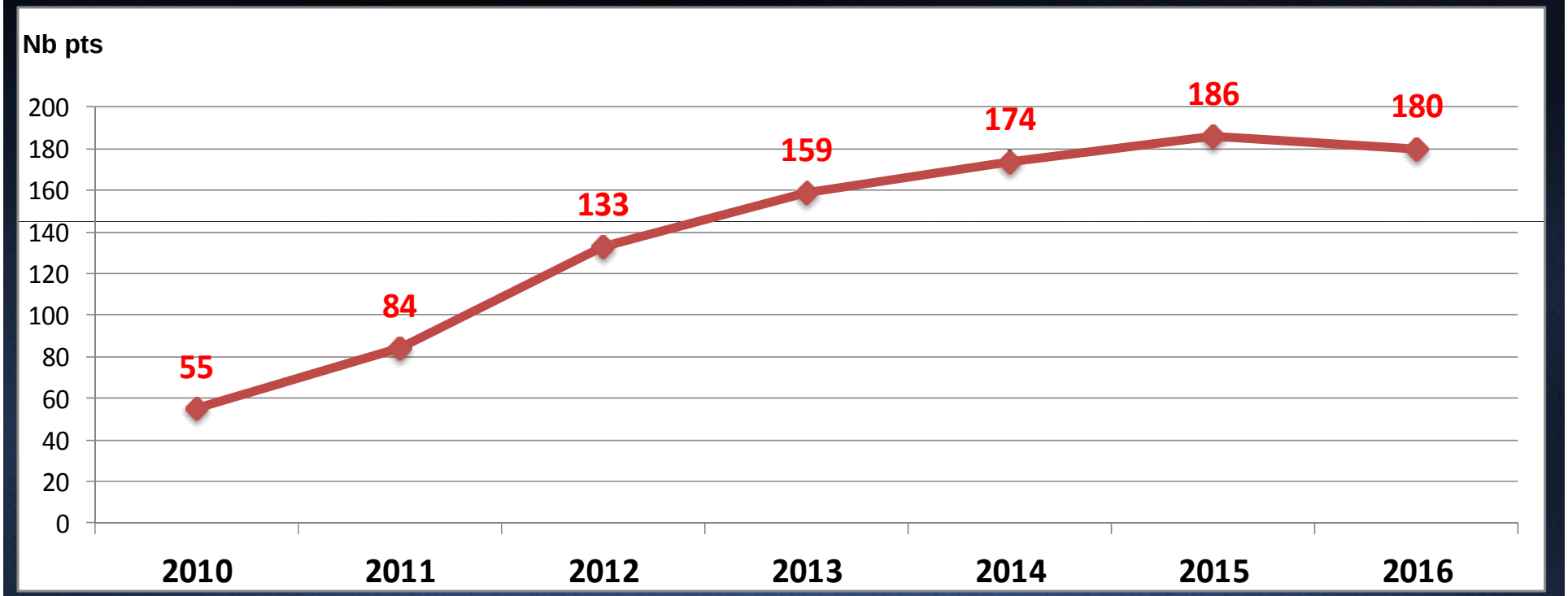


Nom	Prénom	Nom	Prénom	DN	NIP	age	date entrée	date sortie	durée hospit	sorti vivant: 1	H symptomes	H
Takerer	John	Takerer	John	01/01/1959	1110008440	51	04/02/2010	04/03/2010	28	1	Malaise et vomissements depuis 4 heures (SAU d'Ambroise Paré)	N
Delattre	Maurice	Delattre	Maurice	20/06/1936	1110008183	73	04/02/2010	04/03/2010	0	0	Douleur sciatique depuis 12 heures	N
Bujeaud	André	Bujeaud	André	22/02/1944	1110008919	65	07/02/2010	03/05/2010	85	0	Douleur abdominale depuis 48 heures	N
Joly	Luc	Joly	Luc	13/07/1966	1110009818	43	10/02/2010	13/02/2010	3	0	Douleur thoracique depuis 48 heures (passage au SAU de Lariboisière et retour à domicile)	N
Vialatte de Pemille	Jacques	Vialatte de Pemille	Jacques	04/10/1926	201043392	83	15/02/2010	02/03/2010	15	1	Douleur abdominale depuis 14 heures	N
Bourges	Janine	Bourges	Janine	25/08/1941	99334968	68	18/02/2010	23/03/2010	33	1	16/02 à 23h (SAU puis médecine interne pour syndrome inflammatoire)	N
Ferrari	Pierre	Ferrari	Pierre	19/06/1947	1110012298	62	20/02/2010	20/02/2010	0	0	ACR le 20/2 à 11h	N
Crapart	Claude	Crapart	Claude	12/09/1946	1110018376	63	16/03/2010	23/03/2010	7	1	Douleur abdominale depuis une dizaine d'heures	O
Dupuy	Pierre	Dupuy	Pierre	22/04/1936	302106694	73	17/03/2010	17/03/2010	0	1	Douleur thoracique à 5h30 le 17/03	N
Porcher Cohen	Dominique	Porcher Cohen	Dominique	19/04/1959	1110019392	50	20/03/2010	03/04/2010	14	1	Douleur thoracique depuis 24 heures	N
Diombele	Modibo	Diombele	Modibo	22/11/1963	1110022387	46	01/04/2010	21/05/2010	50	1	Douleur thoracique et dyspnée	O
Denizet	Dominique	Denizet	Dominique	06/08/1948	1110022655	61	02/04/2010	15/04/2010	13	1	Douleur dorsale et dypnée subaigues	O
Delme	Michel	Delme	Michel	03/12/1950	1110024101	59	09/04/2010	10/05/2010	31	1	Douleur abdominale depuis 24 heures	O
Sekka	Ahmed	Sekka	Ahmed	25/12/1948	1110031363	61	06/05/2010	21/07/2010	76	1	Douleur thoracique	N
Plessis	René	Plessis	René	11/12/1920	1110033596	89	17/05/2010	21/05/2010	4	0	Douleur abdominale à 20h	N
Badek	Abdelkader	Badek	Abdelkader	29/05/1945	1110029216	64	20/05/2010	01/06/2010	12	1	Douleur thoraco-abdominale à J17 d'une endoprothèse aortique pour dissection de type B	O
Bellaiche	David	Bellaiche	David	20/06/1929	99248607	80	01/06/2010	09/08/2010	69	1	Dysphagie depuis 3 semaines à 5 ans d'une cure d'AAA, avec anévrisme thoracique connu	N
Noel	Colette	Noel	Colette	12/05/1935	1110025106	75	01/06/2010	05/06/2010	4	1	Douleur abdominale depuis 48 heures, AAA connu	N
Pouleau	Pascal	Pouleau	Pascal	17/05/1959	1110039037	51	05/06/2010	16/06/2010	11	1	Douleur thoracique à 17h	N
Oertel	Francine	Oertel	Francine	06/06/1954	1110038856	55	05/06/2010	21/06/2010	16	1	Douleurs thoraciques	N
Gorris	Pierre	Gorris	Pierre	06/12/1959	1110039537	50	07/06/2010	26/06/2010	19	1	Hémorragie digestive et ischémie aigue du MID, à 12 ans d'un pontage aorto-iliaque droit	O
Vracic	Zvonimir	Vracic	Zvonimir	04/12/1937	1110047487	72	07/07/2010	16/07/2010	9	1	Douleur thoracique et syncope	N
Hennequin	Christian	Hennequin	Christian	14/01/1943	1110060215	67	21/07/2010	21/07/2010	0	0	Douleur lombaire gauche	O
Vernet	Claudette	Vernet	Claudette	10/12/1939	1110066015	70	23/07/2010	25/07/2010	2	0	Dyspnée subaigue	O
Rizman	Eva	Rizman	Eva	16/10/1937	1110068255	72	25/07/2010	11/08/2010	17	1	Douleur thoracique puis ACR	N
Moreau	André	Moreau	André	27/07/1929	1110081035	81	29/07/2010	21/08/2010	23	0	Douleur abdominale à 21 ans d'un pontage aorto-aortique pour rupture d'anévrysme	N
Violette	Jeanne	Violette	Jeanne	20/04/1925	1110083795	85	30/07/2010	20/08/2010	21	1	Douleur abdominale et dorsale, AAA connu	N
Francois	Claude	Francois	Claude	08/09/1937	99041915	72	31/07/2010	12/08/2010	12	1	Douleur thoracique, dyspnée, fièvre depuis 1 semaine	N
Teffot	Gerard	Teffot	Gerard	06/07/1952	1110085235	58	01/08/2010	04/08/2010	3	1	Ischémie du MIG, asymétrie tensionnelle	N
Deret	Pierre	Deret	Pierre	06/03/1947	1110169335	63	08/09/2010	11/10/2010	33	1	Douleur FIG et flanc G depuis 24 heures	O
Gaultier de Kermoal	Amaury	Gaultier de Kermoal	Amaury	24/07/1952	1110172296	58	11/09/2010	12/09/2010	1	0	Douleur thoracique brutale, Marfan familial connu	N
Alloisio	Ghislaine	Alloisio	Ghislaine	30/01/1934	1110179715	76	16/09/2010	29/09/2010	11	1	Douleur thoracique depuis 24 heures	N
Pernin	Daniel	Pernin	Daniel	19/01/1932	1110182915	78	21/09/2010	04/10/2010	13	1	Polyvasculaire, IRC, SAS, ATCD de PAC et de PABiF, AAA connu	N
Serna	Philibert	Serna	Philibert	03/06/1938	1110183560	72	22/09/2010	13/10/2010	21	1	Malaise et douleur abdominale brutale	N
Lasne	Gérard	Lasne	Gérard	29/03/1929	1110200275	81	07/10/2010	09/10/2010	2	0	Douleur abdominale depuis 2 heures et état de choc	N

SOS Aorte

- Information campaign to ER mobile units (SAMU) & ER departments
- Internet for general public & professionnals
- French television documentary
- « Post-university teaching » sessions
- Oral presentations

SOS Aorte


Nb pts
200
180
160
140
120
100
80
60
40
20
0
55
84
133
159
174
186
180
2010
2011
2012
2013
2014
2015
2016

Impact of SOS Aorta on referral & mortality

461 patients referred for aortic emergencies over a 6 year-period

Impact of SOS Aorta on referral & mortality

Number pts	Before SOS Aorta	After SOS Aorta	
All aortic emergencies	**58±6,6**	**96±17**	*p<0,05*
Type A Dissection	28±3	42±3,6	*p<0,05*
Type B Dissection	18±3,2	23±5,2	*p=0,1*
Ruptured aneurysm	10±1,5	21±6,1	*p<0,05*
Traumatic rupture of the aorta	6±1	9±3,1	*p=0,07*

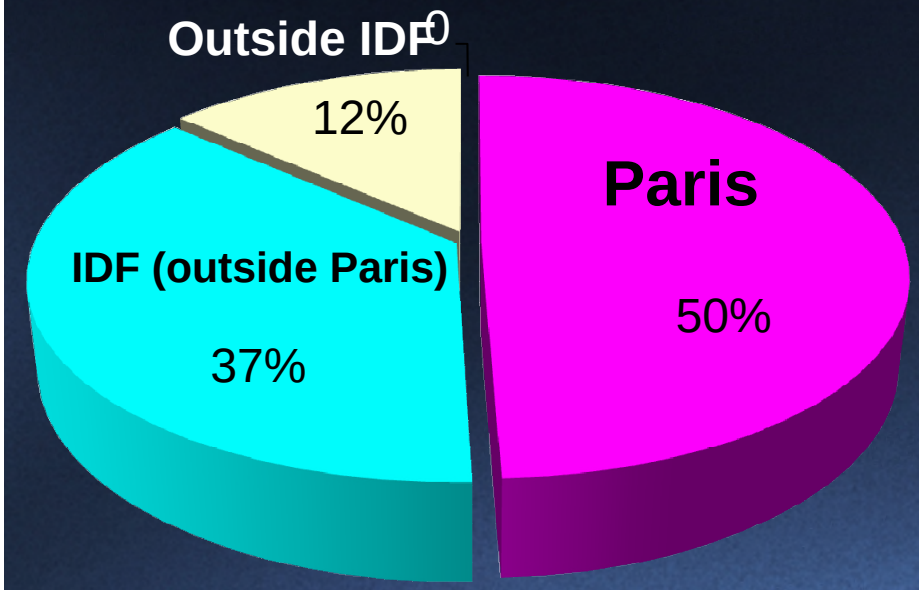
Mortality	Before SOS Aorta	After SOS Aorta	
All aortic emergencies	**36,4±1,84%**	**21,6%**	*p<0,01*
Type A Dissection	53%	30%	*p<0,01*
Type B Dissection	12%	9%	*p=0,1*
Ruptured aneurysm	50%	23%	*p<0,05*
Traumatic rupture of the aorta	22%	9%	*p<0,05*

Impact of SOS Aorta on referral & mortality

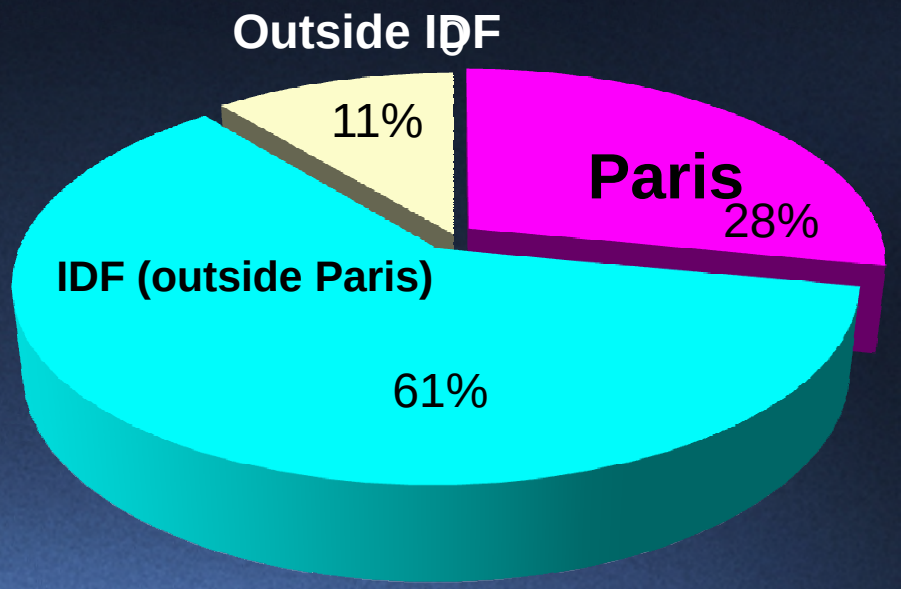
	Before SOS Aorta	After SOS Aorta
Mean age	64 y	68 y
	(33-88)	(20-93)
Hemodynamic instability	12%	31%
Neurologic deficit @ presentation	3,1%	6%
Deep hypothermic circulatory arrest	45%	62%

Impact of SOS Aorta on referral & mortality

Geographic distribution of referred cases



Before SOS aorta



After SOS aorta

SOS Aorte

SOS Aorta Registry :
2/2/2010 → 16/08/2016: **900 pts**

- Mean age 66 ans (16-100)
- ♂ 68%
- Unstable 22 %
- Cardiac arrest 5%

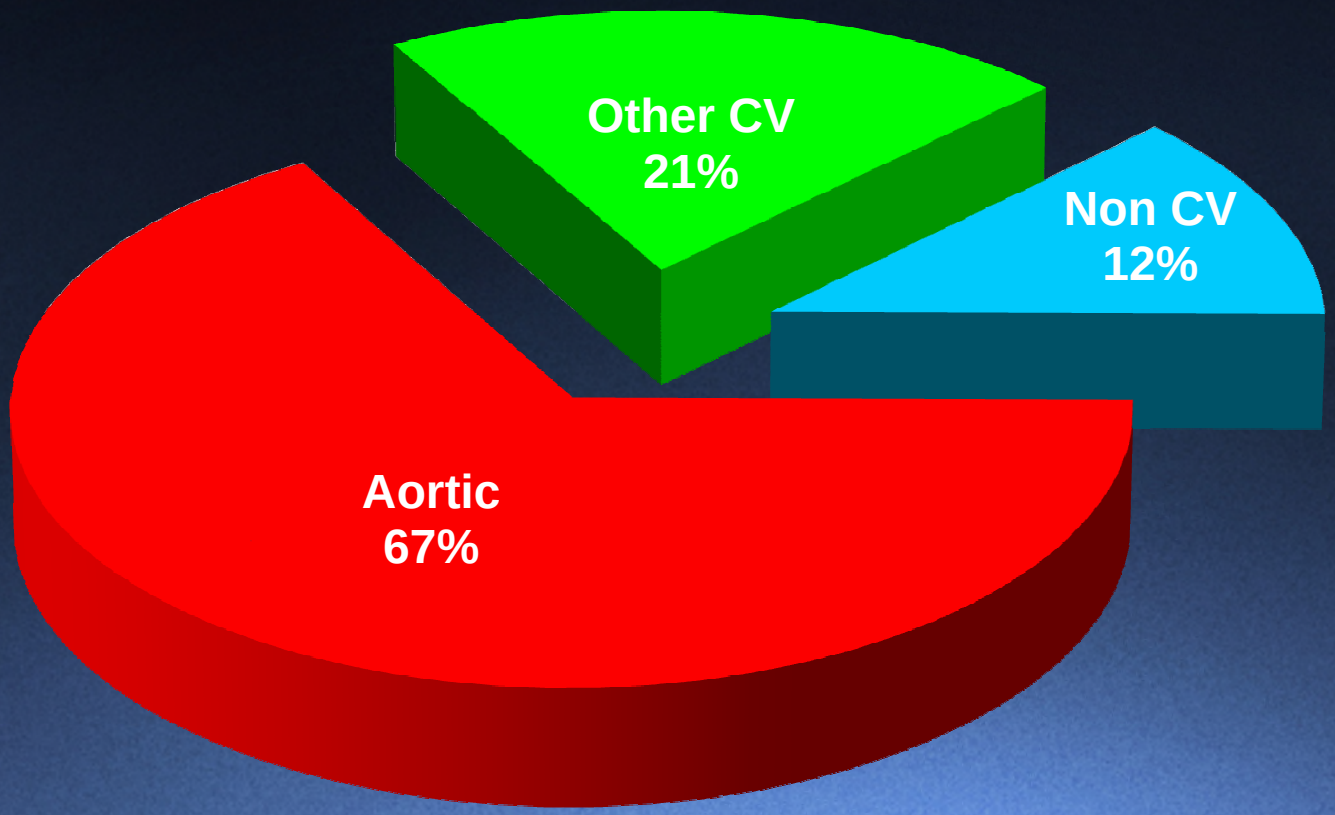
(1,8% non recuperated)

- SAPS2 mean 38,3 ± 25,2

(New Simplified acute physiology score)

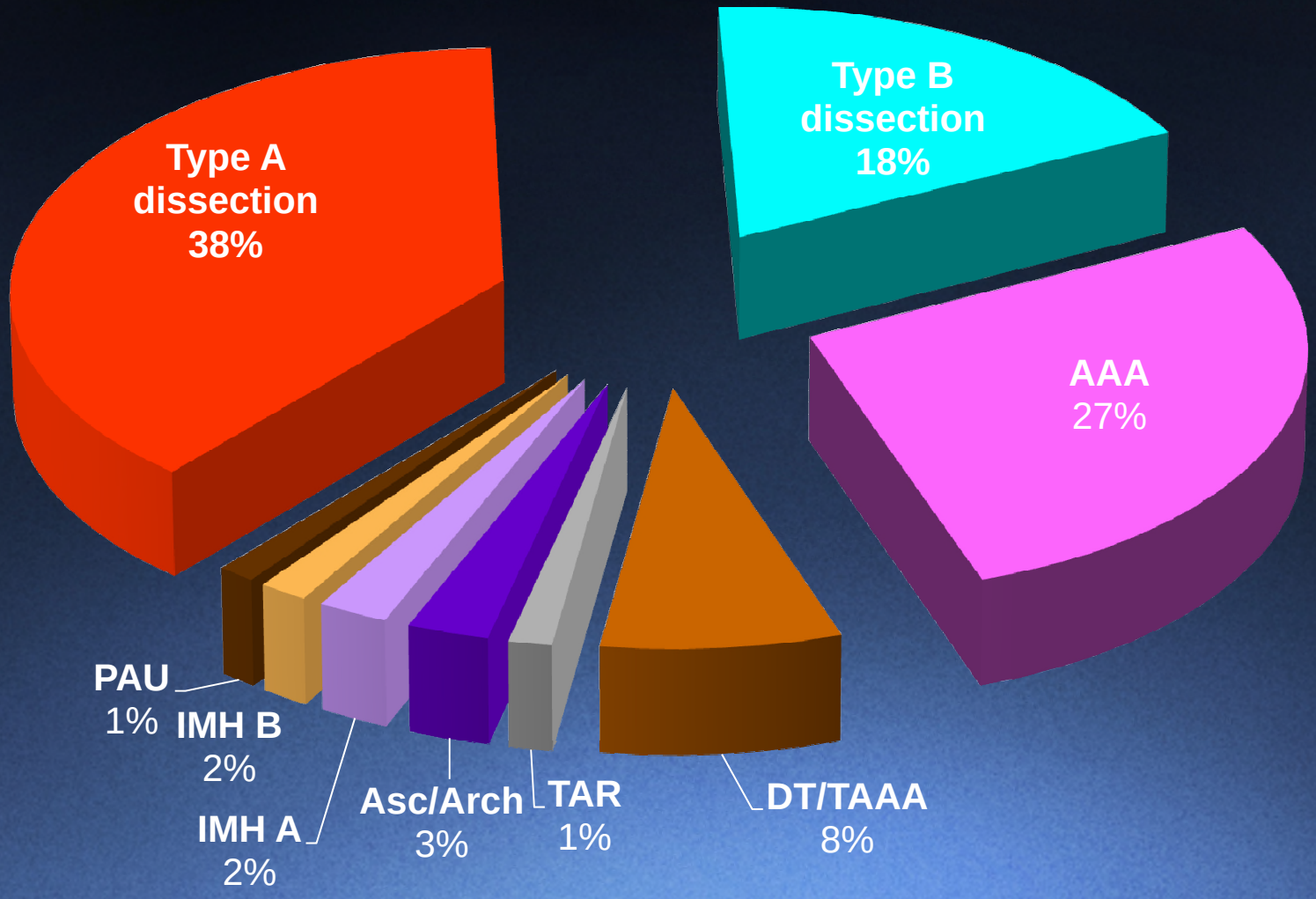
SOS Aorte

Final diagnosis



SOS Aorte

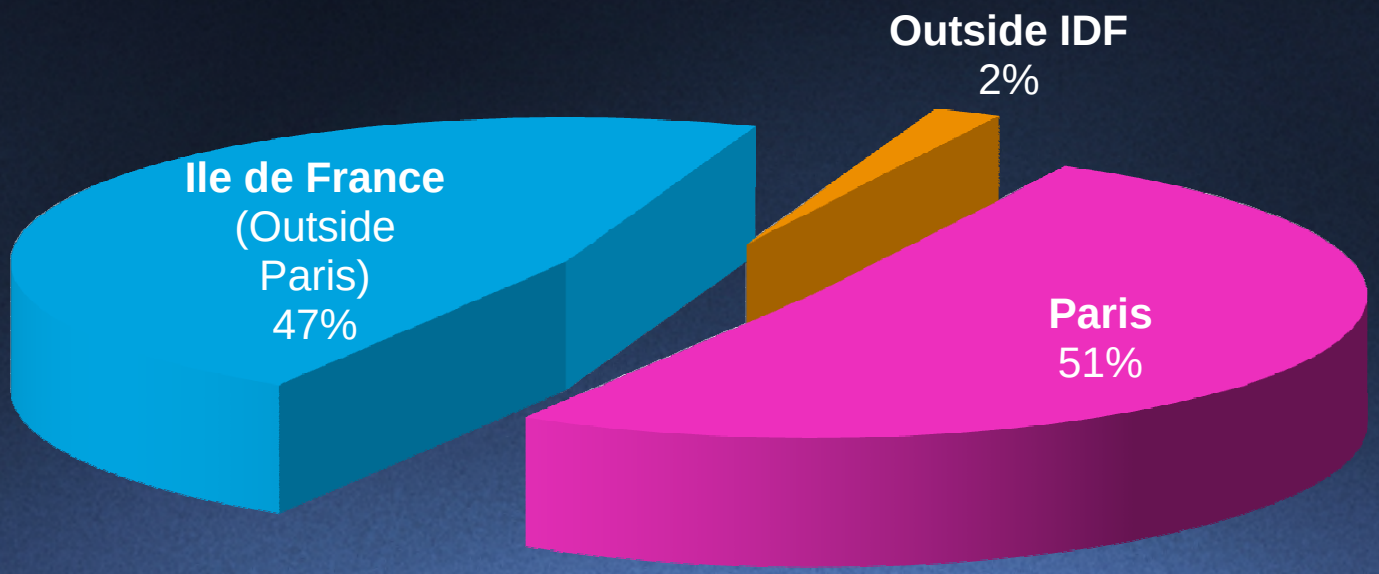
Final diagnosis



SOS Aorte

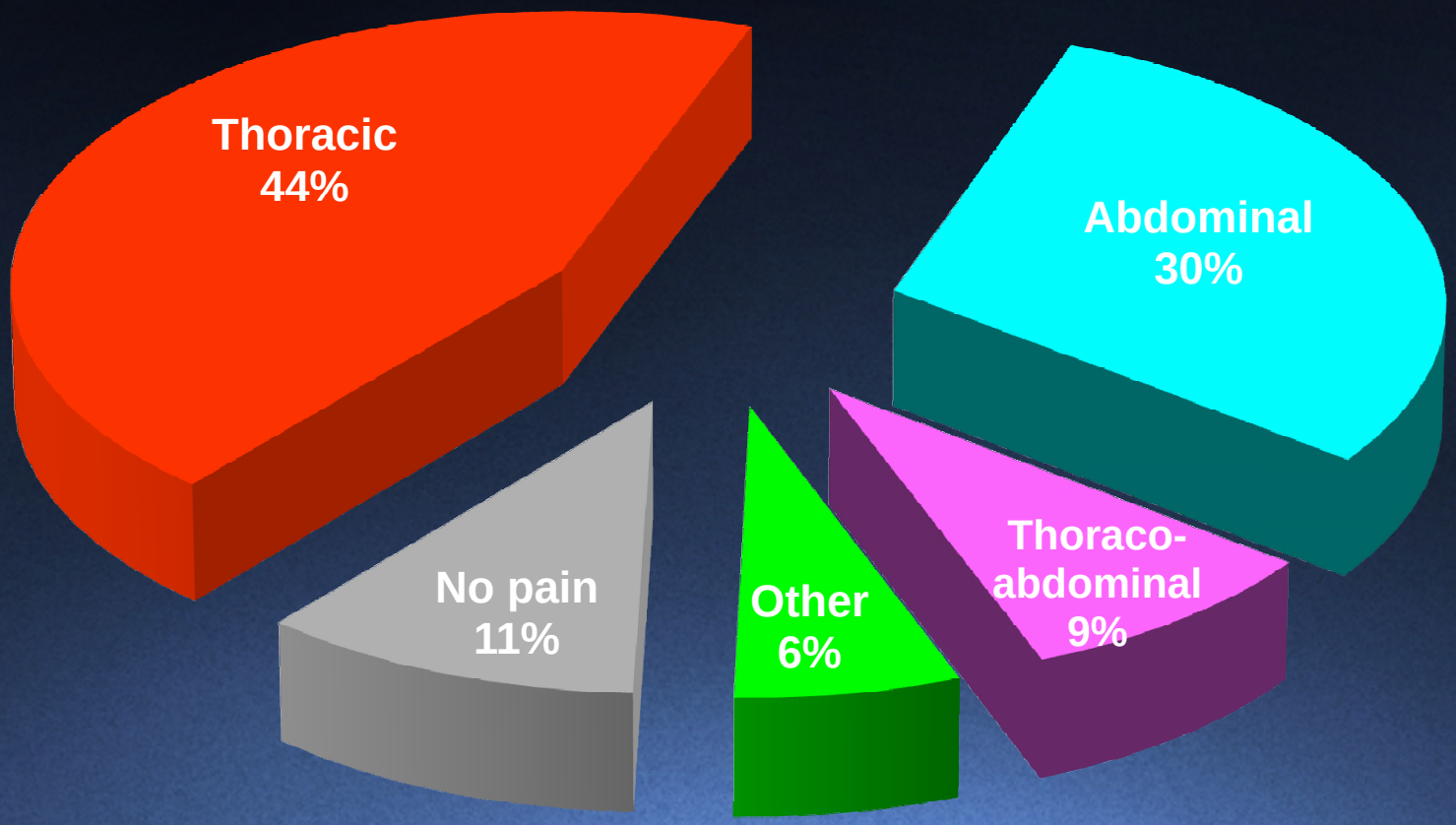
Geographic distribution

Primary referral (ER Mobile U)



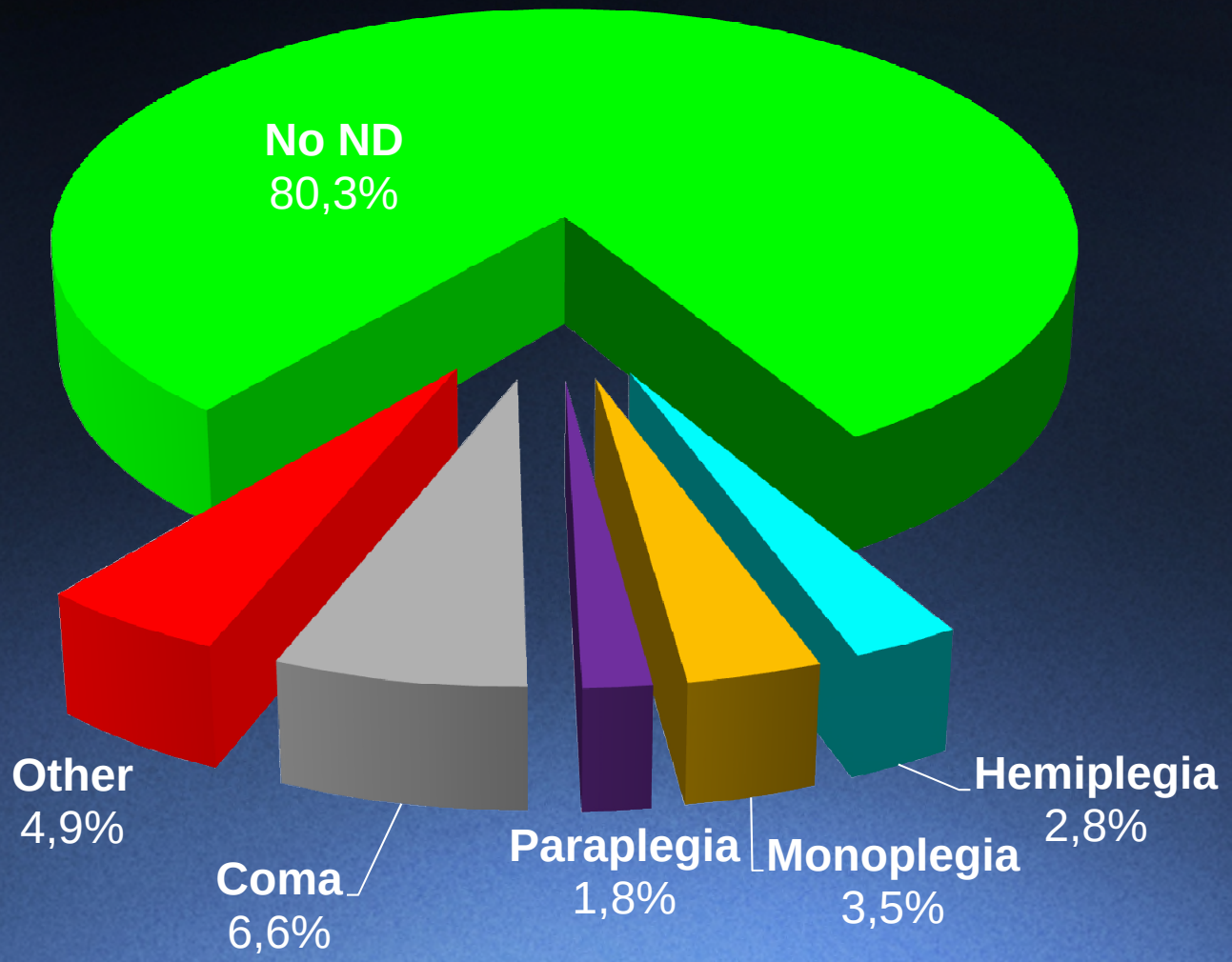
SOS Aorte

Pain



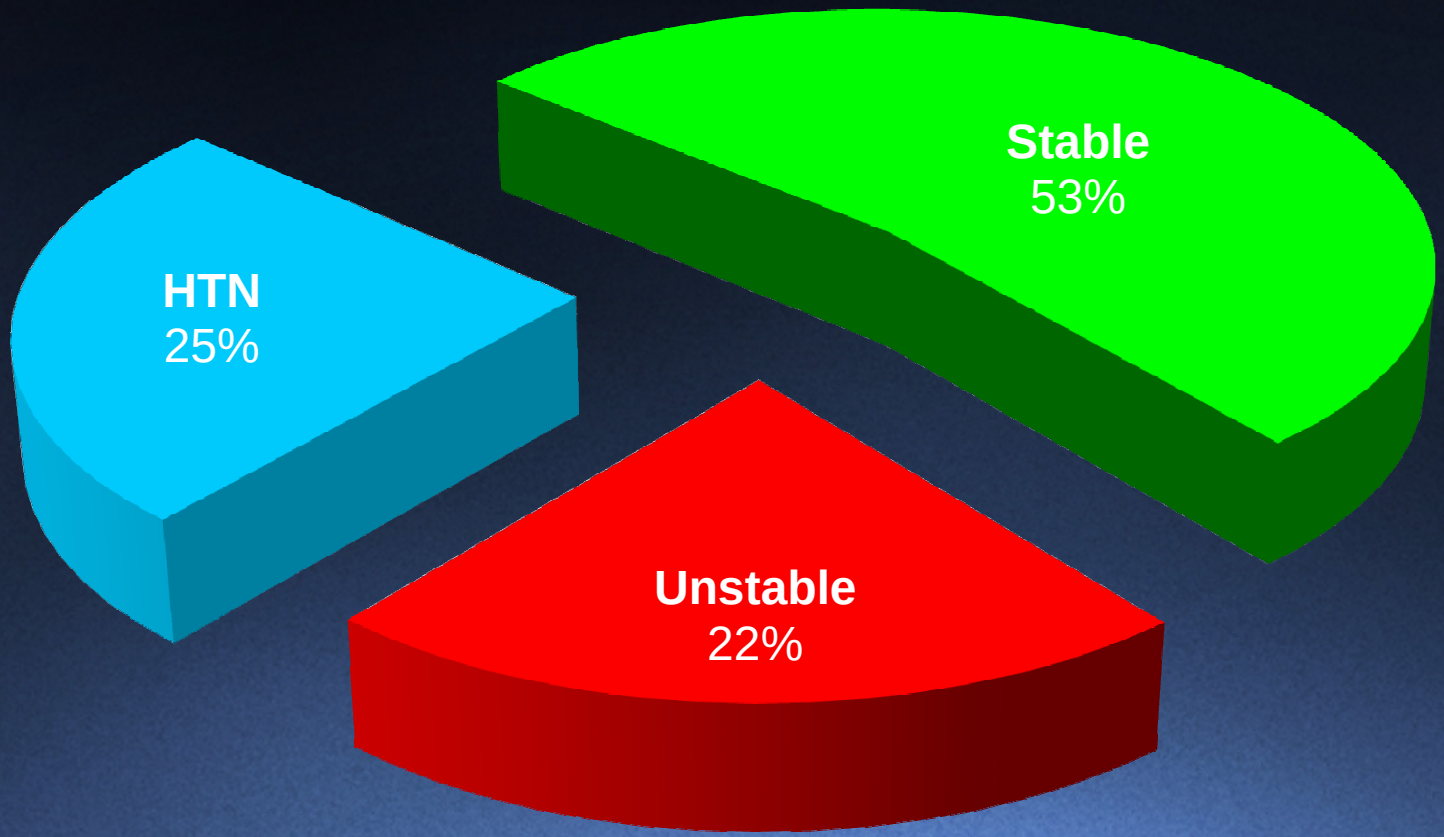
SOS Aorte

Neurological deficit



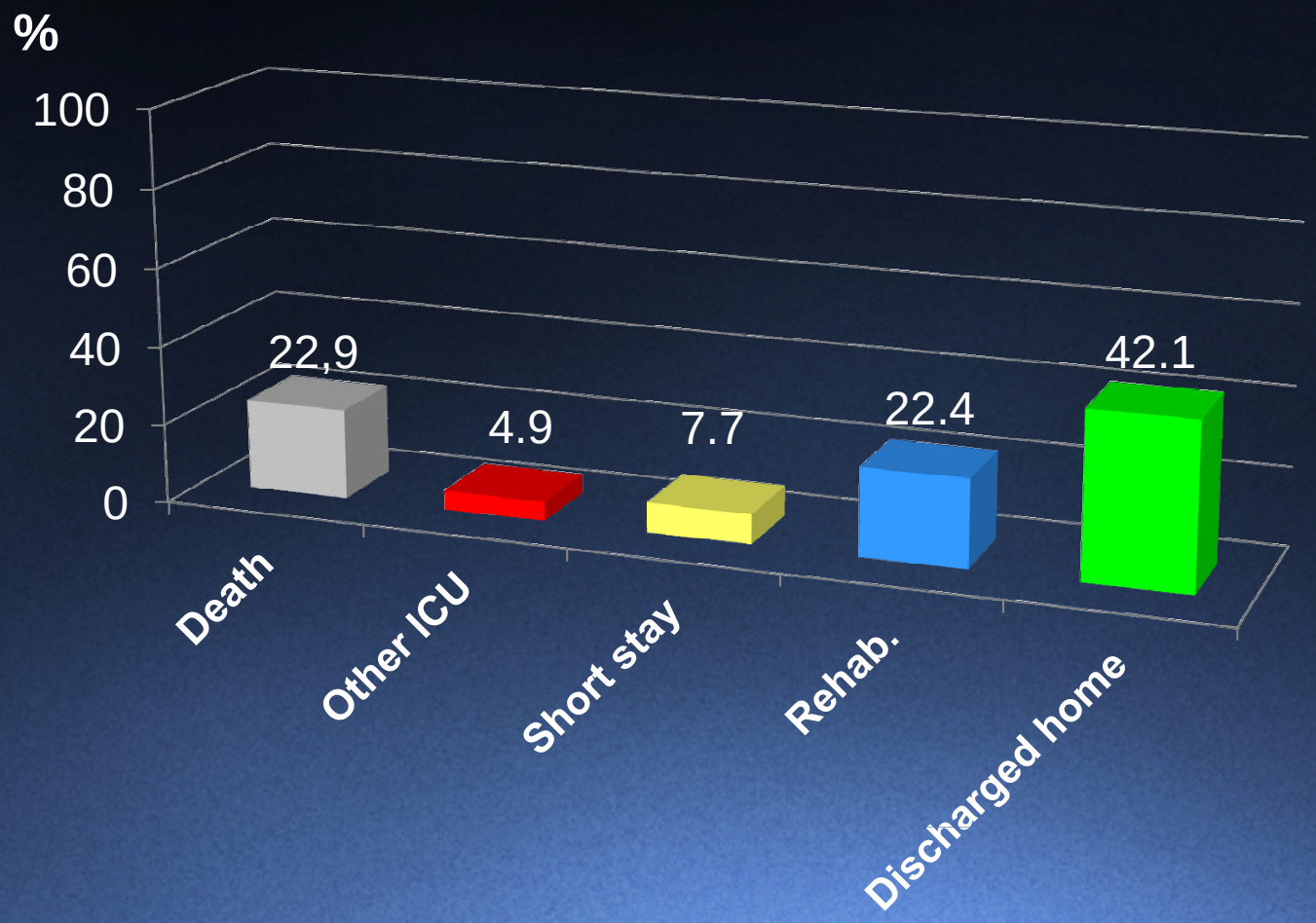
SOS Aorte

Hemodynamics



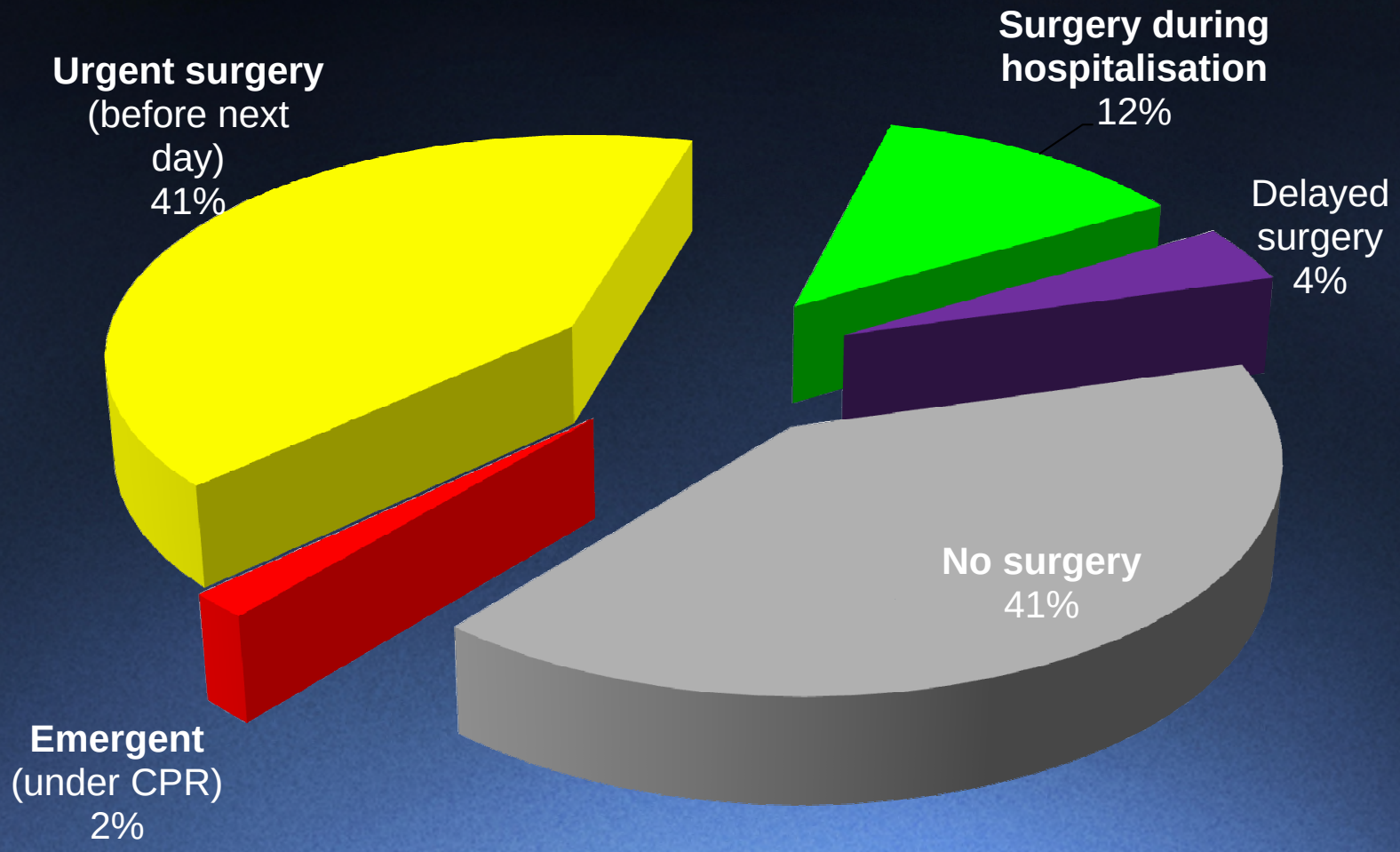
SOS Aorte

Results



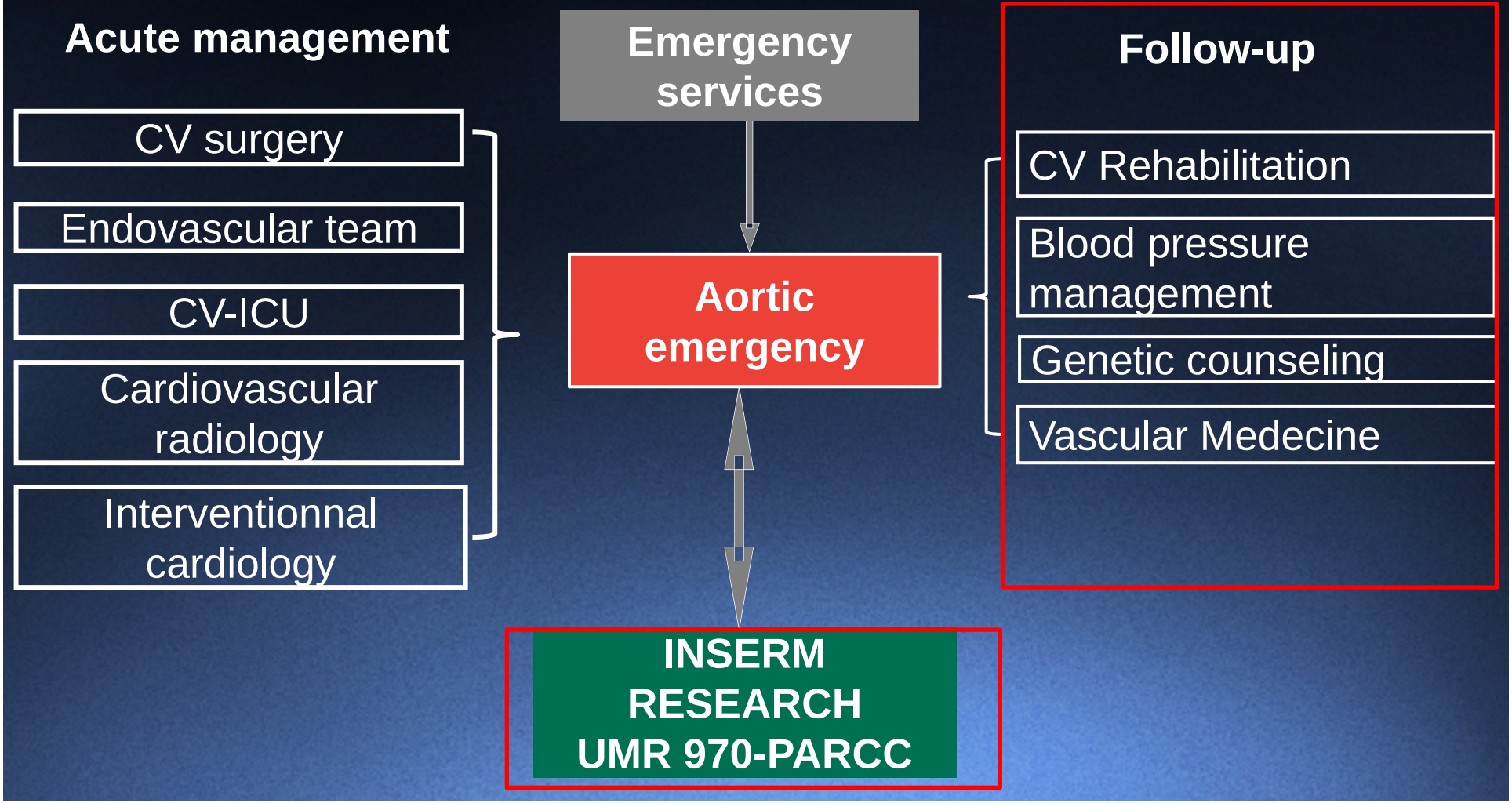
SOS AORTA

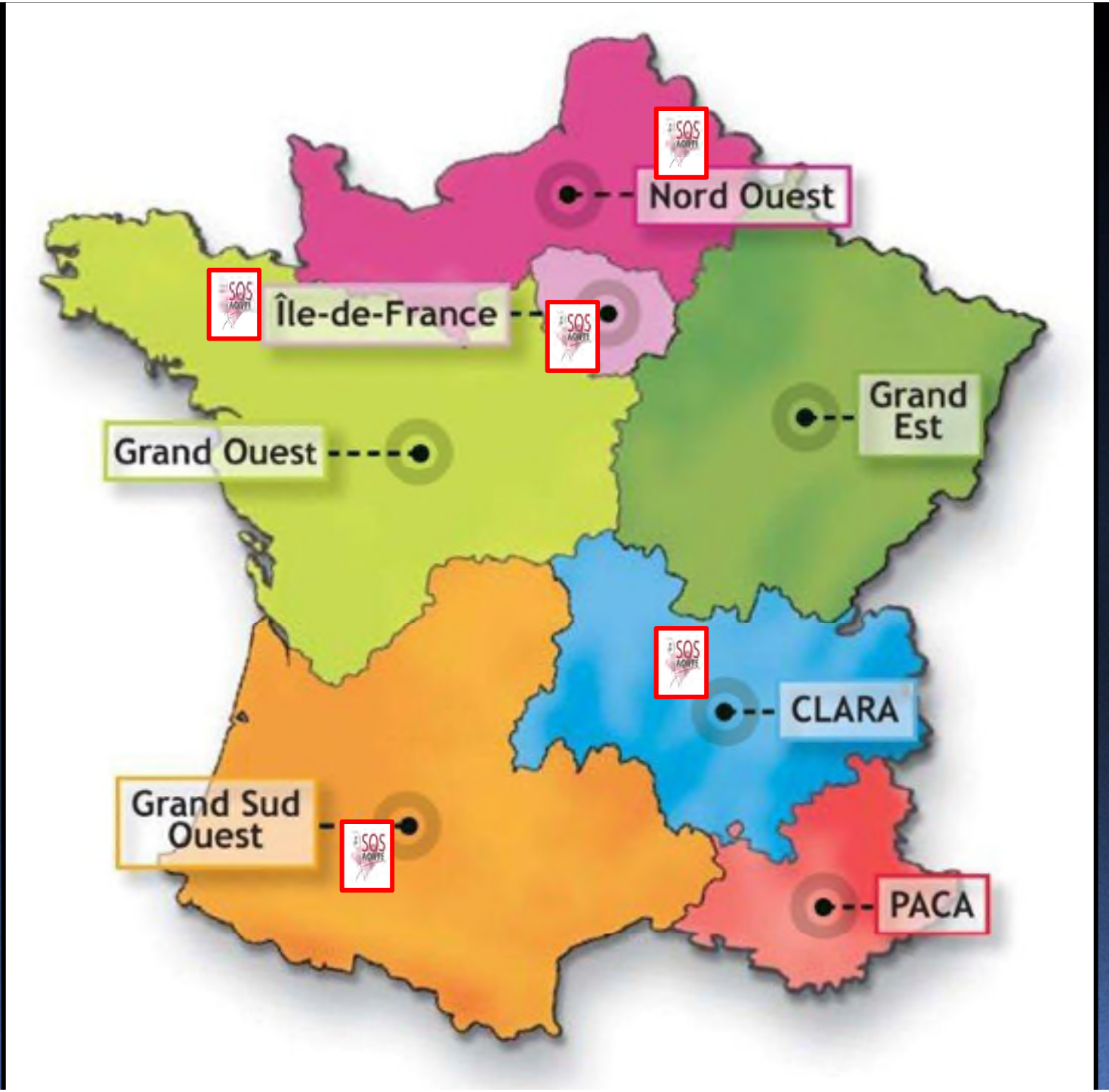
Surgical treatment



Median time to urgent surgery = 54 min

A complete & multidisciplinary management




Nord Ouest
Île-de-France
Grand Ouest
Grand Est
CLARA
Grand Sud Ouest
PACA

HEGP

Hôpital Européen Georges Pompidou