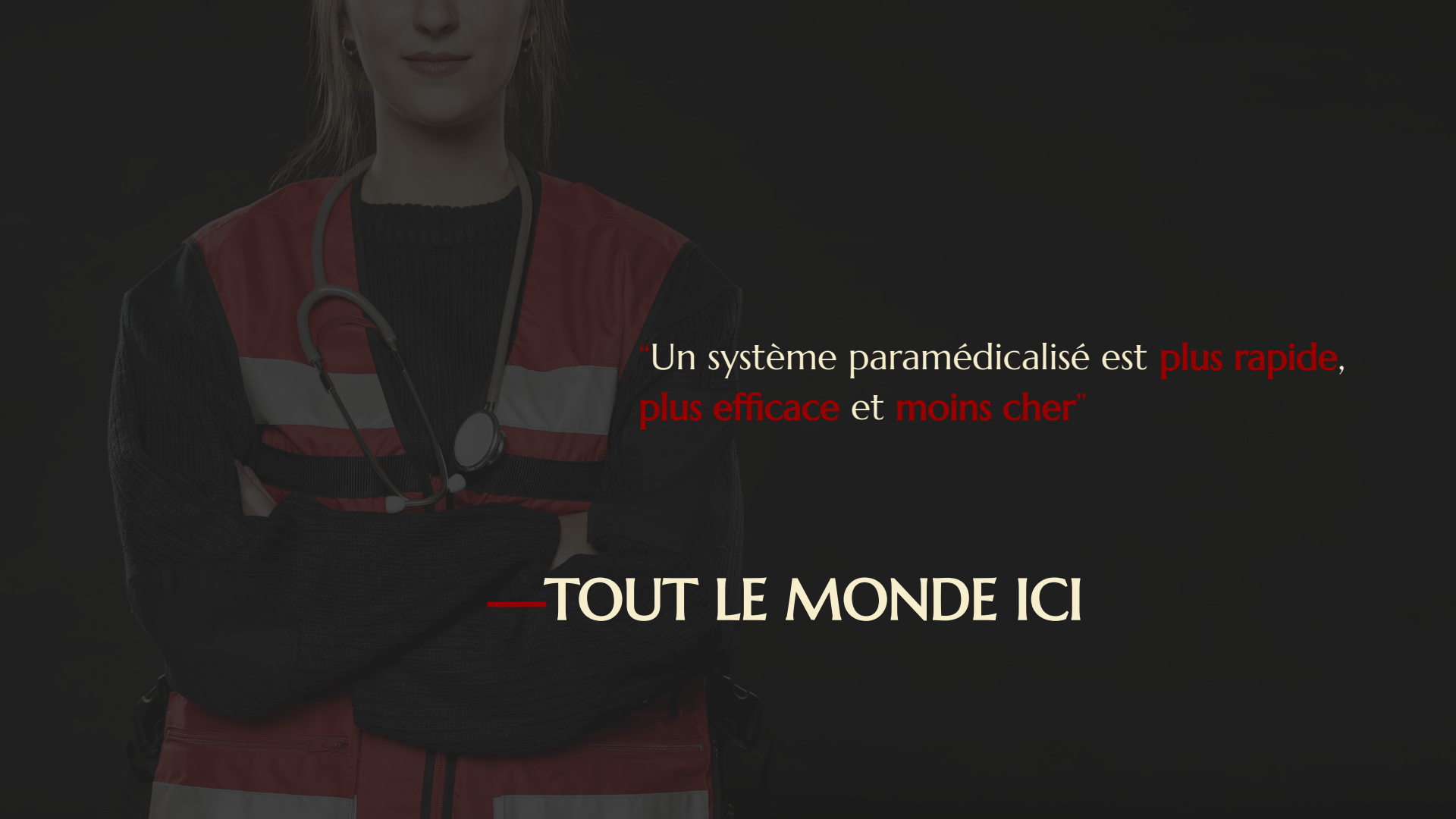
Les mardis scientifiques de la BSPP
12 avril 2022

TRANSPORT NON MÉDICALISÉ DES SCA ?

POUR !

Dr Matthieu HEIDET, MD PhD
SAMU 94 & Urgences Mondor, Créteil


VOUS SAVEZ, MOI
JE NE CROIS PAS
QU'IL Y AIT DE BONNE
OU DE MAUVAISE SITUATION.
MOI, SI JE DEVAIS RÉSUMER MA VIE
AUJOURD'HUI AVEC VOUS, JE DIRAIS QUE C'EST
D'ABORD DES RENCONTRES. DES GENS QUI M'ONT TENDU LA MAIN,
PEUT-ÊTRE À UN MOMENT OÙ JE NE POUVAIS PAS, OÙ J'ÉTAIS SEUL CHEZ MOI. ET C'EST ASSEZ CURIEUX DE SE DIRE QUE LES HASARDS, LES
RENCONTRES FORGENT UNE DESTINÉE.. PARCE QUE QUAND ON A LE GOÛT DE LA CHOSE, QUAND ON A LE GOÛT DE LA CHOSE BIEN FAITE, LE BEAU GESTE, PARFOIS ON NE TROUVE PAS L'INTERLOCUTEUR EN FACE JE DIRAIS, LE MIROIR QUI VOUS AIDE À AVANCER. ALORS ÇA N'EST PAS MON CAS, COMME JE DISAIS LÀ, PUISQUE MOI AU CONTRAIRE, J'AI PU : ET JE DIS MERCI À LA VIE.



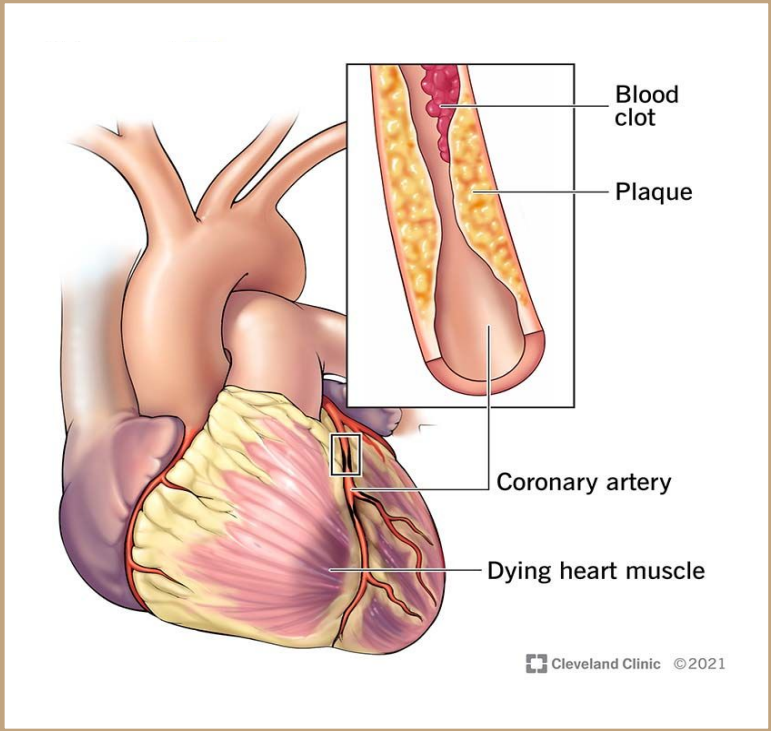
“Un système paramédicalisé est **plus rapide**, **plus efficace** et **moins cher**”

—TOUT LE MONDE ICI

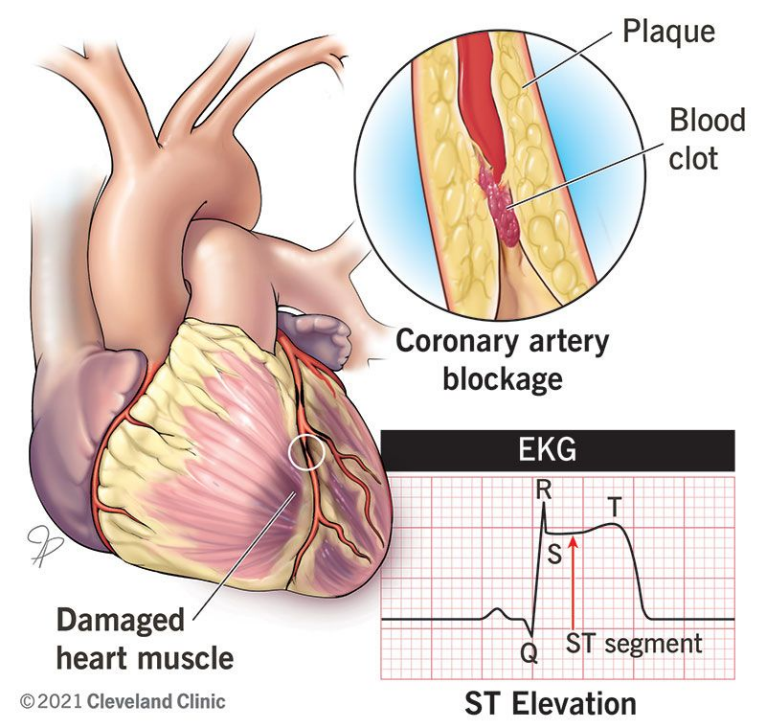
01

UN DIAGNOSTIC FACILE

NON-ST+

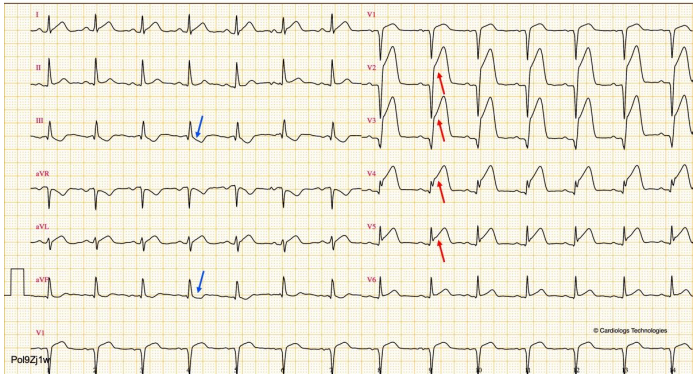

Blood clot
Plaque
Coronary artery
Dying heart muscle
Cleveland Clinic ©2021

ST+


Plaque
Blood clot
Coronary artery blockage
EKG
R
T
S
ST segment
Q
Damaged heart muscle
©2021 Cleveland Clinic
ST Elevation

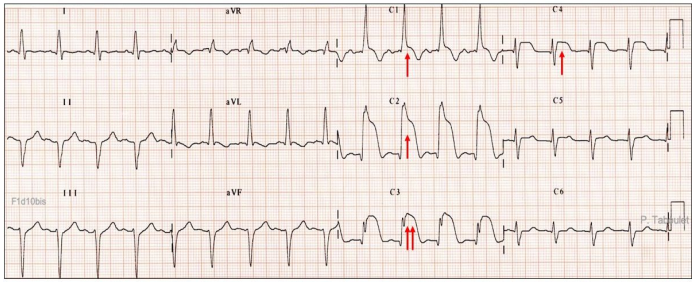
Infarctus avec élévation de ST

Infarctus ST+ antérieur



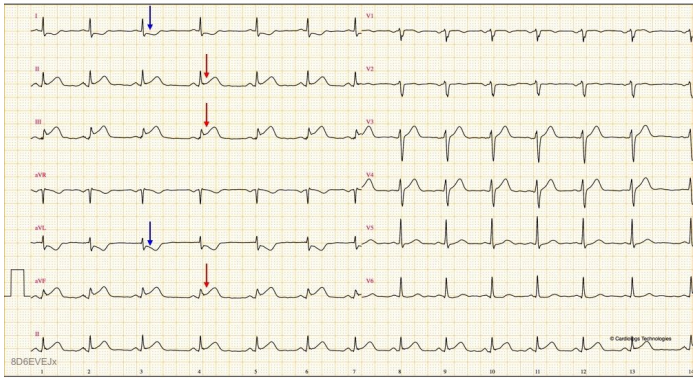
Infarctus avec élévation de ST

Onde de Pardee dans le territoire septo-apical (antéro-supérieur)
NB. absence de miroir (occlusion IVA moyenne)



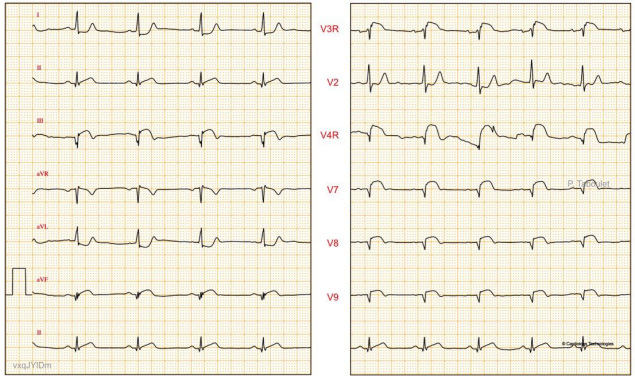
Infarctus inférieur

ST+ = 1 mm en dérivations inférieures avec miroir franc DI-VL



Infarctus du ventricule droit
(ST+ inféro-basal avec extension VD)

ST+ inférieur et en V3R-V4R (VD) et V7-V9 (basal)

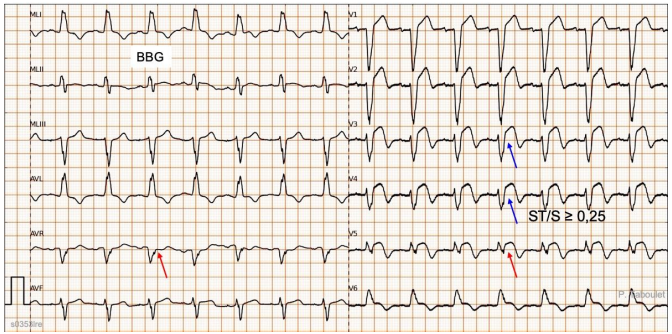


Infarctus ST+ avec BBG

("signes de Sgarbossa modifies par Smith")

Concordance

Majoration discordance ST/S ≥ 0,25



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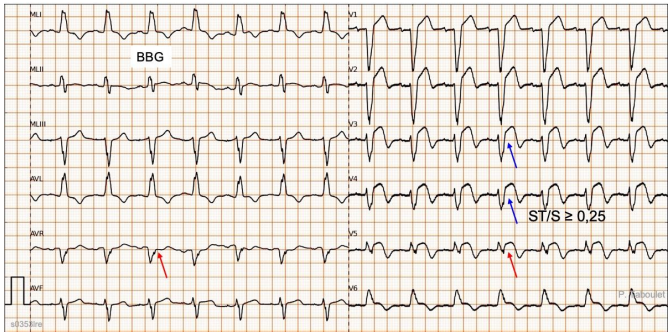
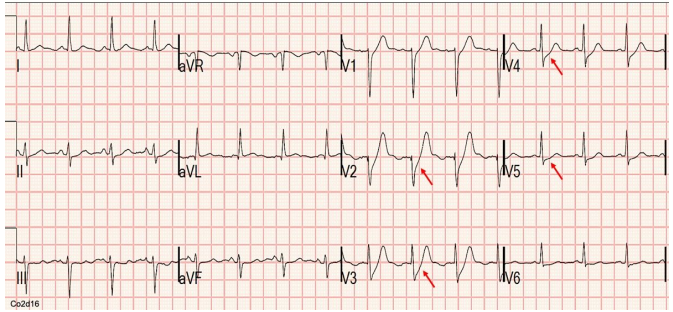
↑ Concordance ↑ Majoration discordance ST/S ≥ 0,25



Onde T de de Winter

- Dans les dérivations précordiales, segment ST ascendant à partir d'un point J sous-décalé de 1 à 3 mm qui se termine en une onde T plutôt ample, positive et symétrique (« *hyperacute T-wave with depressed ST takeoff* »).
- Les complexes QRS sont habituellement fins ou peu élargis. Ils peuvent présenter des signes de nécrose comme un rabotage des ondes R ou une fragmentation



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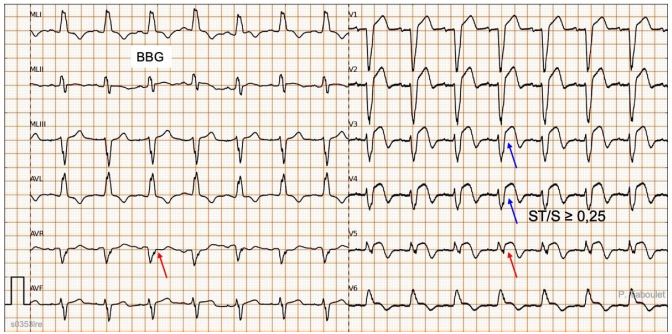

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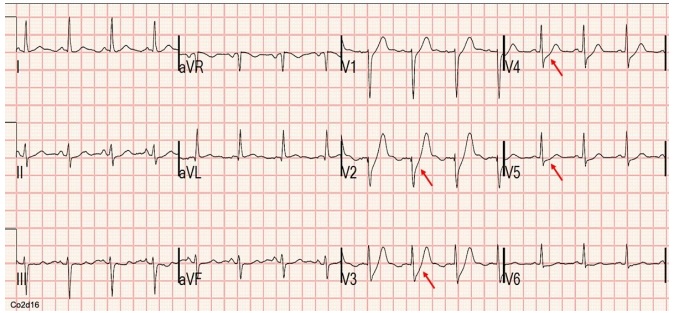
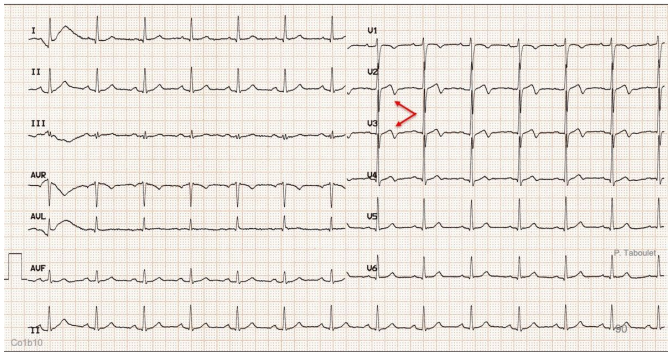


Syndrome de Wellens
(« syndrome de l’IVA »)

Inversion terminale de T en V2-V3(V4) = ischémie sous-épicardique (type 1)



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(“signes de Sgarbossa modifies par Smith”)

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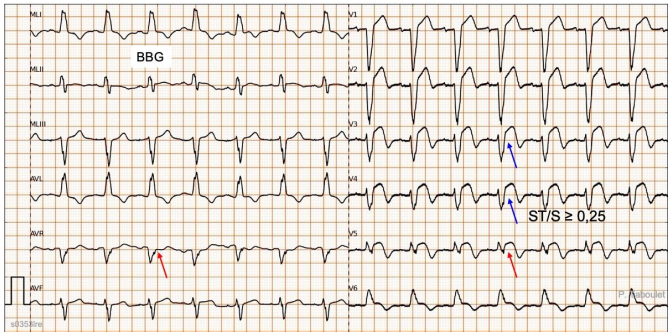

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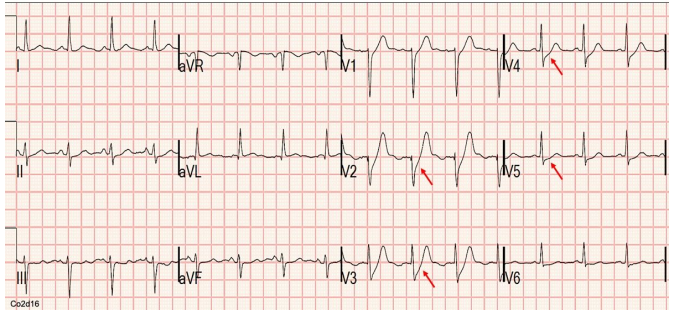

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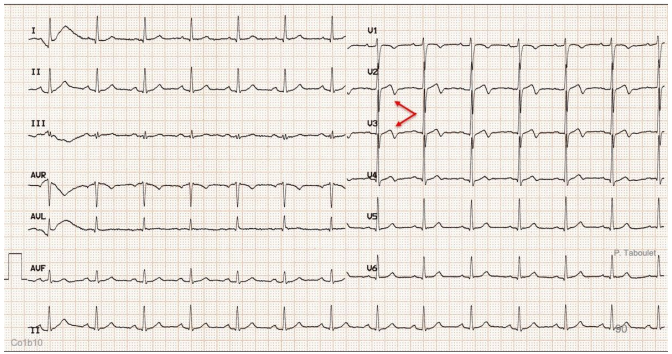
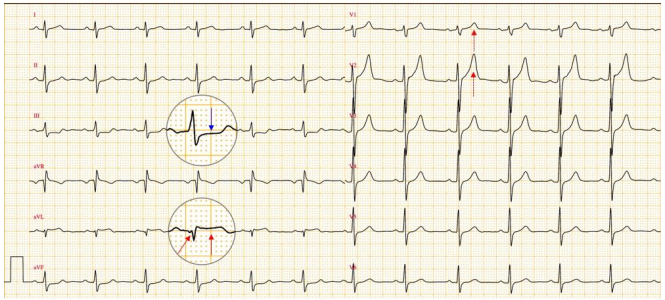
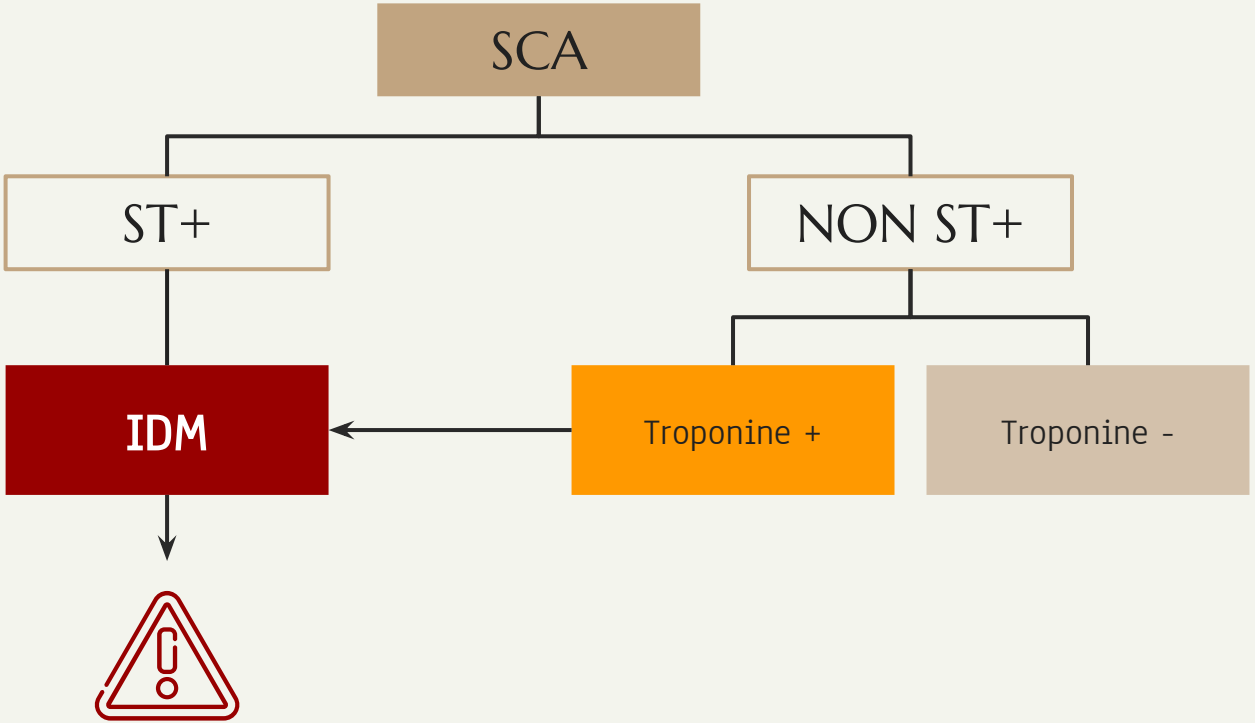


Sus-decalage subtile de ST
(infarctus territoire lateral)

Occlusion coronaire aiguë de la 1ère diagonale

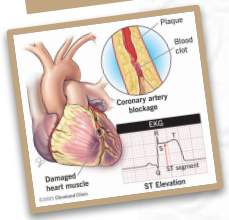


ESC 2018 « l'amplitude des QRS affecte l'amplitude des anomalies du segment ST ».
→ *When considering deviations of the ST segment, one should bear in mind total QRS amplitude because this variable also affects the amplitude of ST-segment abnormalities.*


SCA
ST+
NON ST+
IDM
Troponine +
Troponine -


ET LES
PARAMEDS ?

ST+



Logistics of prehospital care

ESC European Society of Cardiology

Recommendations	Class	Level
It is recommended that the prehospital management of STEMI patients is based on regional networks designed to deliver reperfusion therapy expeditiously and effectively, with efforts made to make primary PCI available to as many patients as possible.	I	B
It is recommended that primary PCI-capable centres deliver a 24/7 service and are able to perform primary PCI without delay.	I	B
It is recommended that patients transferred to a PCI-capable centre for primary PCI bypass the emergency department and CCU/ICCU and are transferred directly to the catheterization laboratory.	I	B
It is recommended that ambulance teams are trained and equipped to identify STEMI (with use of ECG recorders and telemetry as necessary) and administer initial therapy, including fibrinolysis when applicable.	I	C

Prehospital diagnosis and triage of ST-elevation myocardial infarction by paramedics without advanced care training

Warren J. Cantor, MD,[a,b] Paul Hoogeveen, MD,[c] Andrew Robert,[d] Karen Elliott,[a] Lorne E. Goldman, MD,[a] Erica Sanderson,[d] Sylvain Plante, MD,[a] Manu Prabhakar, MD,[a] and Steven Miner, MD[a] *Ontario, Canada*

- **4h d'entraînement** à la lecture d'ECG 12 dérivations

- N=134 suspicions de ST+ par paramedics "de premier niveau" (PCP)
  - n=121 **(90%) ST+ retenus** par cardiologues
  - n=106 **(79%) coronarographies anormales**
  - n=**1 complication** pendant le transport (flutter mal toléré)

Table II. Treatment times

Time interval	Time (min) Median (25th-75th percentile)
All patients (N = 134)	
Symptom onset to first medical contact	71 (32-196)
First medical contact to first ECG	6 (5-10)
Total EMS time at scene	16 (13-19)
Departing scene to arrival at catheterization laboratory	43 (36-57)
First medical contact to arrival at catheterization laboratory	59 (50-75)
Patients who underwent urgent PCI (n = 104)	
Arrival at catheterization laboratory to 1st inflation	31 (25-40)
First medical contact to 1st inflation	91 (81-115)

Real-time paramedic compared with blinded physician identification of ST-segment elevation myocardial infarction: results of an observational study☆

James A. Feldman MD[a,*], Kathryn Brinsfield MD[a,c], Sheilah Bernard MD[b], Daniel White EMT-P[c], Thomas Maciejko EMT-P[c]

Abstract The aim of the study were to determine if paramedics can accurately identify ST-segment elevation myocardial infarction (STEMI) on prehospital 12-lead (PHTL) electrocardiogram and to compare paramedic with blinded physician identification of STEMI. Paramedics identified definite STEMI, or possible acute myocardial infarction but not definite, and nondiagnostic. Two blinded readers (cardiologist and emergency physician) independently categorized each PHTL. A third reviewer assigned final diagnoses and determined whether the PHTL met STEMI criteria. One hundred sixty-six PHTL were acquired over an 8-month period. Fifteen were excluded from analysis. Sixty-two percent of the patients (94/151) were male, mean age was 61.1 years (±14.8 SD, range 20-92 years), and 81% had chest pain. Twenty-five patients (16.6%; 95% confidence interval [CI], 11%-23.5%) had confirmed STEMI and 16 (10.6%) had confirmed non-STEMI acute myocardial infarction. Paramedic sensitivity was 0.80 (95% CI, 0.64-0.96); specificity was 0.97 (95% CI, 0.94-1.00) with positive likelihood ratio of 25.2 and negative likelihood ratio of 0.21. Overall accuracy was similar for paramedic and physician reviewers (0.94, 0.93, 0.95). Highly trained paramedics in an urban emergency medical services system can identify patients with STEMI as accurately as blinded physician reviewers.

Table 3 Estimates (95% CI)

	Paramedic	EM MD	Cardiology MD
Sensitivity	0.80 (0.64-0.96)	0.80 (0.64-0.96)	0.92 (0.81-1.00)
Specificity	0.97 (0.94-1.00)	0.96 (0.93-0.99)	0.96 (0.93-0.99)
positive predictive value	0.83 (0.68-0.98)	0.80 (0.64-0.96)	0.82 (0.68-0.96)
Negative predictive value	0.96 (0.93-0.99)	0.96 (0.93-0.99)	0.98 (0.96-1.00)
Overall accuracy	0.94 (0.90-0.98)	0.93 (0.89-0.97)	0.95 (0.92-0.99)
Likelihood ratio			
Positive	25.2 (9.4-67.4)	20.16	23.18
Negative	0.21	0.21	0.08

Table 4 Interobserver agreement

Reader	McNemar	*P*	kappa	95% CI
EM-cardiology	1.0	.32 (NS)	0.79	(0.67-0.92)
Paramedic-cardiology	1.14	.28 (NS)	0.67	(0.52-0.83)
Paramedic-EM	0.09	.76 (NS)	0.73	(0.58-0.88)

EM indicates emergency medicine.


SCHILLER
Touch 7 Series
VENTRICULAR FIBRILLATION
HR
197
SpO2
SpCO
NIBP
RR
TEMP
38
Sync
150J
Charge
DEFIGARD


GRANDSTREAM

Prehospital tele-electrocardiographic triage improves the management of acute coronary syndrome in rural populations: A systematic review and meta-analysis

Gilbert Lazarus[1], HL Kirchner[2] and Bambang B Siswanto[3]

Door-to-balloon

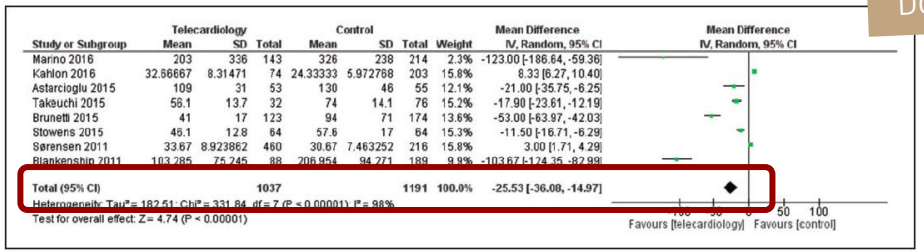


Figure 2. Forest plot depicting the mean difference of door-to-balloon time between prehospital telecardiology and usual care. Data were presented in mean difference and 95% confidence interval using a random-effects model.

Prehospital tele-electrocardiographic triage improves the management of acute coronary syndrome in rural populations: A systematic review and meta-analysis

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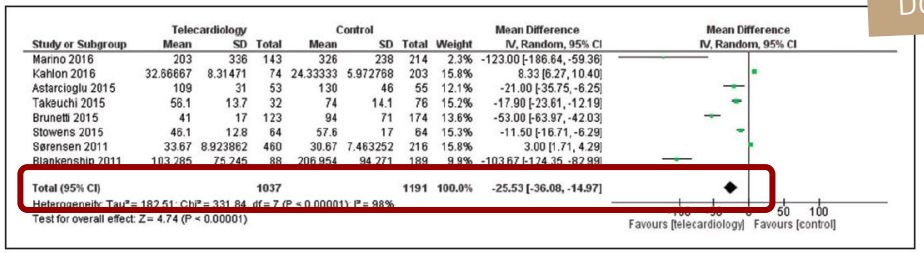

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Mortalité

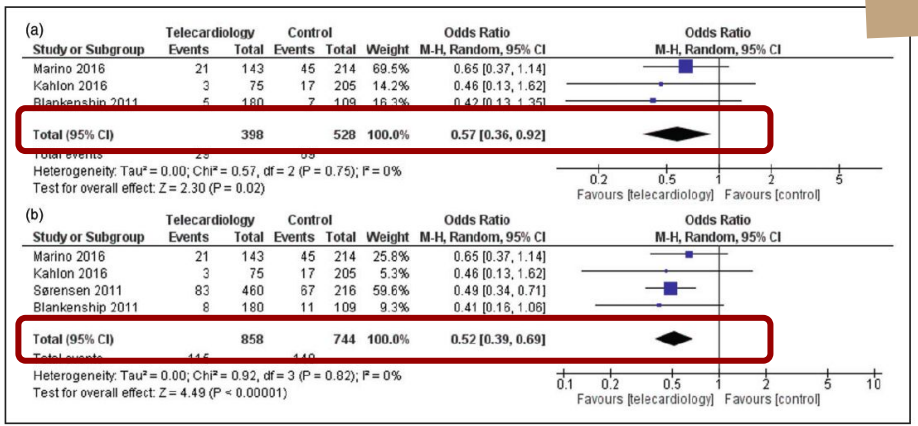
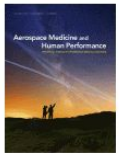


Figure 4. Forest plot depicting comparison between prehospital telecardiology and usual care on (a) in-hospital mortality rates and (b) long-term mortality rates. Data are presented as odds ratios and 95% confidence intervals using a random-effects model.



Quality of Electrocardiograms Obtained in Flight by Airline Flight Attendants

BACKGROUND: Handling cases of chest pain aboard commercial flights is challenging for crewmembers, onboard medical volunteers, and ground-based doctors providing remote advice. Obtaining an electrocardiogram (ECG) in-flight could help in dictating the management of such cases. The ability to diagnose or rule out ST-segment elevation myocardial infarction (STEMI) would have clinical and prognostic implications. The feasibility of obtaining good quality ECG tracings by flight attendants in flight is not known.

METHODS: A series of 200 consecutive ECG tracings transmitted to a ground-based medical support provider were independently reviewed by four observers who ranked the ECG tracings according to a quality score (QS) criteria, as well as trying to identify or rule-out cases of STEMI.

RESULTS: ECG quality was considered good enough to extract useful information in 170 of 200 tracings (85%). Seven cases of STEMI were identified. A STEMI was confidently ruled out in 104 cases. Additional abnormalities of variable clinical importance were also detected.

DISCUSSION: ECGs are essential in the prehospital management of chest pain cases. ECGs obtained in flight by airline flight attendants were mostly of diagnostic quality, allowing confirmation or ruling out of STEMI, as well as detecting arrhythmias of clinical significance in case management.

Physician Accuracy in Interpreting Potential ST-Segment Elevation Myocardial Infarction Electrocardiograms

James M. McCabe, MD; Ehrin J. Armstrong, MSc, MD; Ivy Ku, MD; Ameya Kulkarni, MD; Kurt S. Hoffmayer, PharmD, MD; Prashant D. Bhave, MD; Stephen W. Waldo, MD; Priscilla Hsue, MD; John C. Stein, MD; Gregory M. Marcus, MSc, MD; Scott Kinlay, MBBS, PhD; Peter Ganz, MD

Table 3. Direct Comparisons of Participants' ECG Interpretation Accuracy for All ECGs (36) and Limited to ECGs Just From Those With Culprit Lesions on Angiography (24)

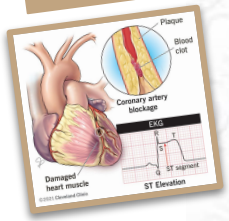
	All ECGs			True STEMI ECGs Only		
	OR	95% CI	*P* Value	OR	95% CI	*P* Value
By experience						
Per 5 years experience*	1.06	1.02 to 1.10	0.01	1.05	0.61 to 1.78	0.87
Resident	Ref	—	—	Ref	—	—
Fellow	1.26	1.02 to 1.57	0.03	1.07	0.84 to 1.38	0.56
Attending	1.45	1.19 to 1.77	<0.01	1.42	1.06 to 1.89	0.02
By specialty						
Non-cardiologists	Ref	—	—	Ref	—	—
General cardiologists	0.97	0.79 to 1.2	0.8	0.91	0.72 to 1.14	0.42
Interventional cardiologists	1.24	0.93 to 1.67	0.15	1.2	0.88 to 1.62	0.25
Attending emergency physicians	Ref	—	—	Ref	—	—
Attending general cardiologists	0.91	0.67 to 1.23	0.53	0.77	0.50 to 1.20	0.25
Attending interventional cardiologists	1.06	0.73 to 1.53	0.77	0.91	0.57 to 1.45	0.69

CI indicates confidence interval; ECG, electrocardiogram; OR, odds ratio; STEMI, ST-segment elevation myocardial infarction.
*Experience since medical school graduation.

02

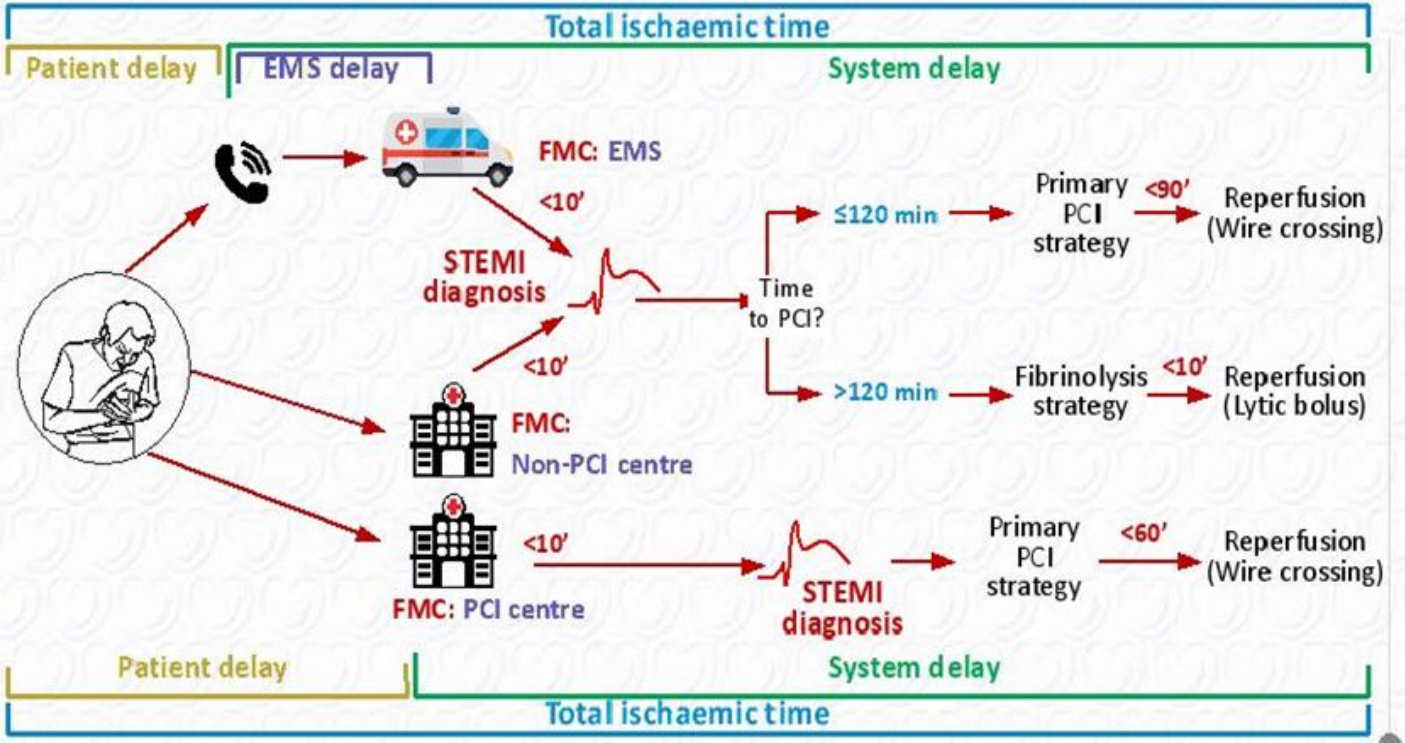
UNE STRATÉGIE SIMPLE

ST+



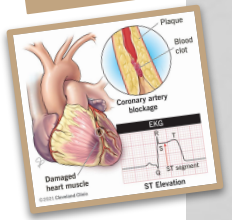
Modes of patient presentation, components of ischaemic time and flowchart for reperfusion strategy selection

ESC European Society of Cardiology



www.escardio.org/guidelines 2017 ESC Guidelines for the Management of AMI-STEMI (European Heart Journal 2017 - doi:10.1093/eurheartj/ehx095)

ST+



Modes of patient presentation, components of ischaemic time and flowchart for reperfusion strategy selection

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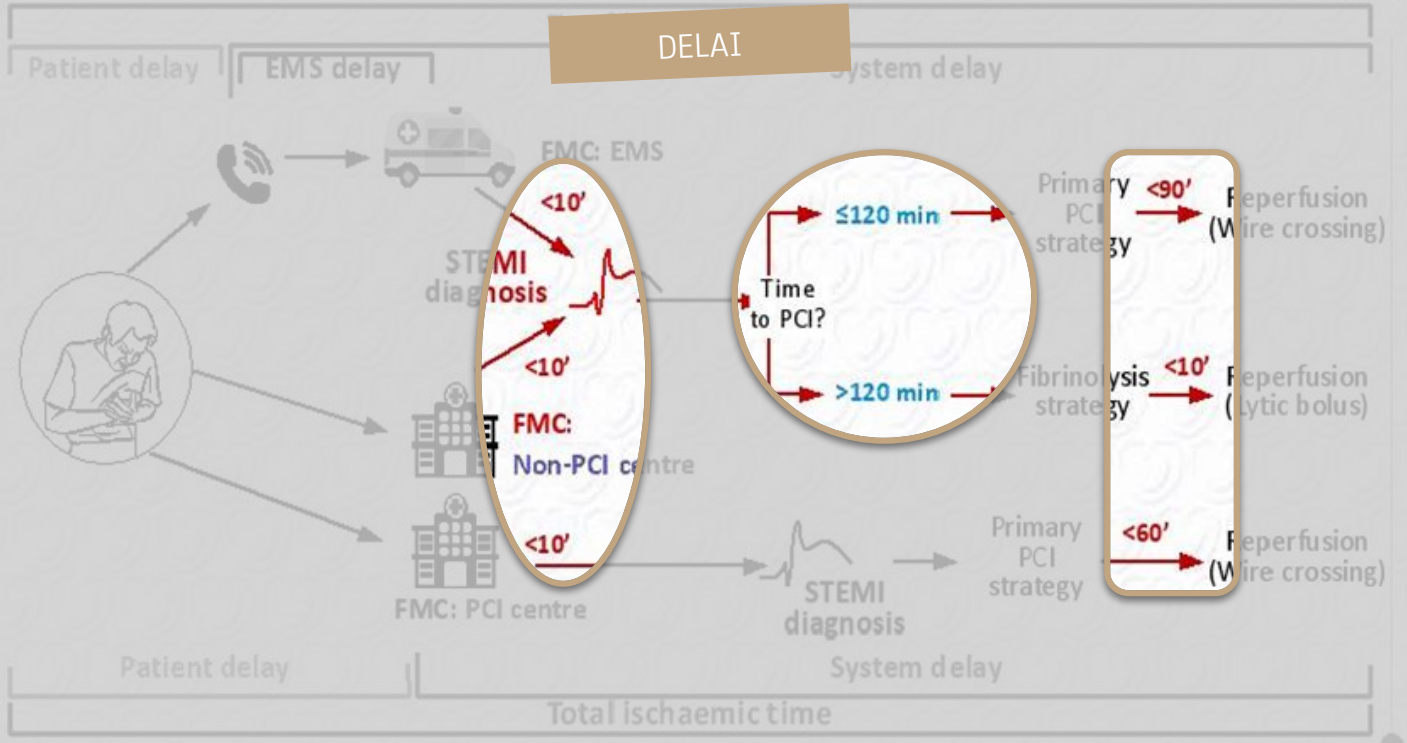
DELAI



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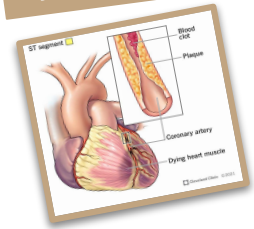


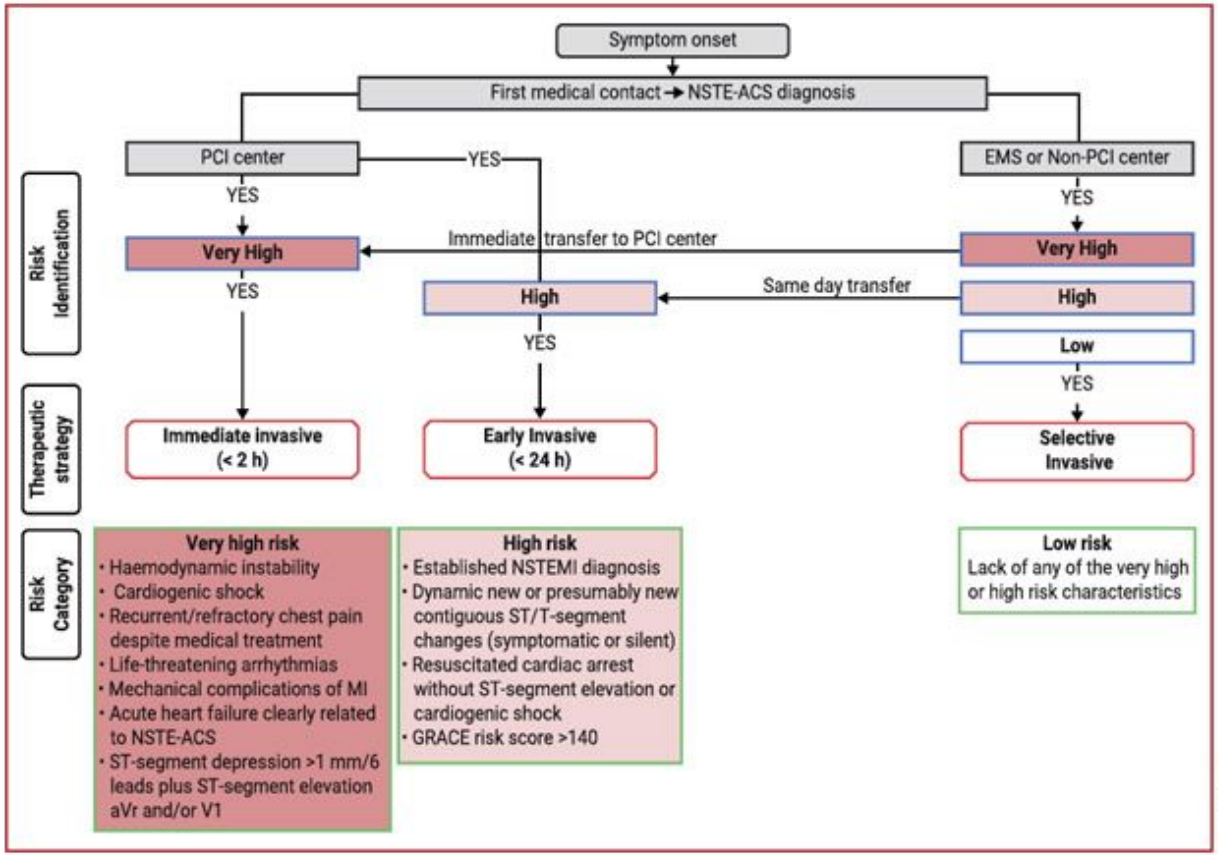
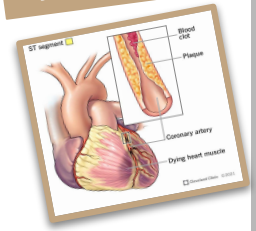


Figure 9 Selection of non-ST-segment elevation acute coronary syndrome treatment strategy and timing according to initial risk stratification. EMS = emergency medical services; GRACE = Global Registry of Acute Coronary Events; MI = myocardial infarction; NSTE-ACS = non-ST-segment elevation acute coronary syndrome; NSTEMI = non-ST-segment elevation myocardial infarction; PCI = percutaneous coronary intervention. *Listen to the audio guide of this figure online.*

NON ST+



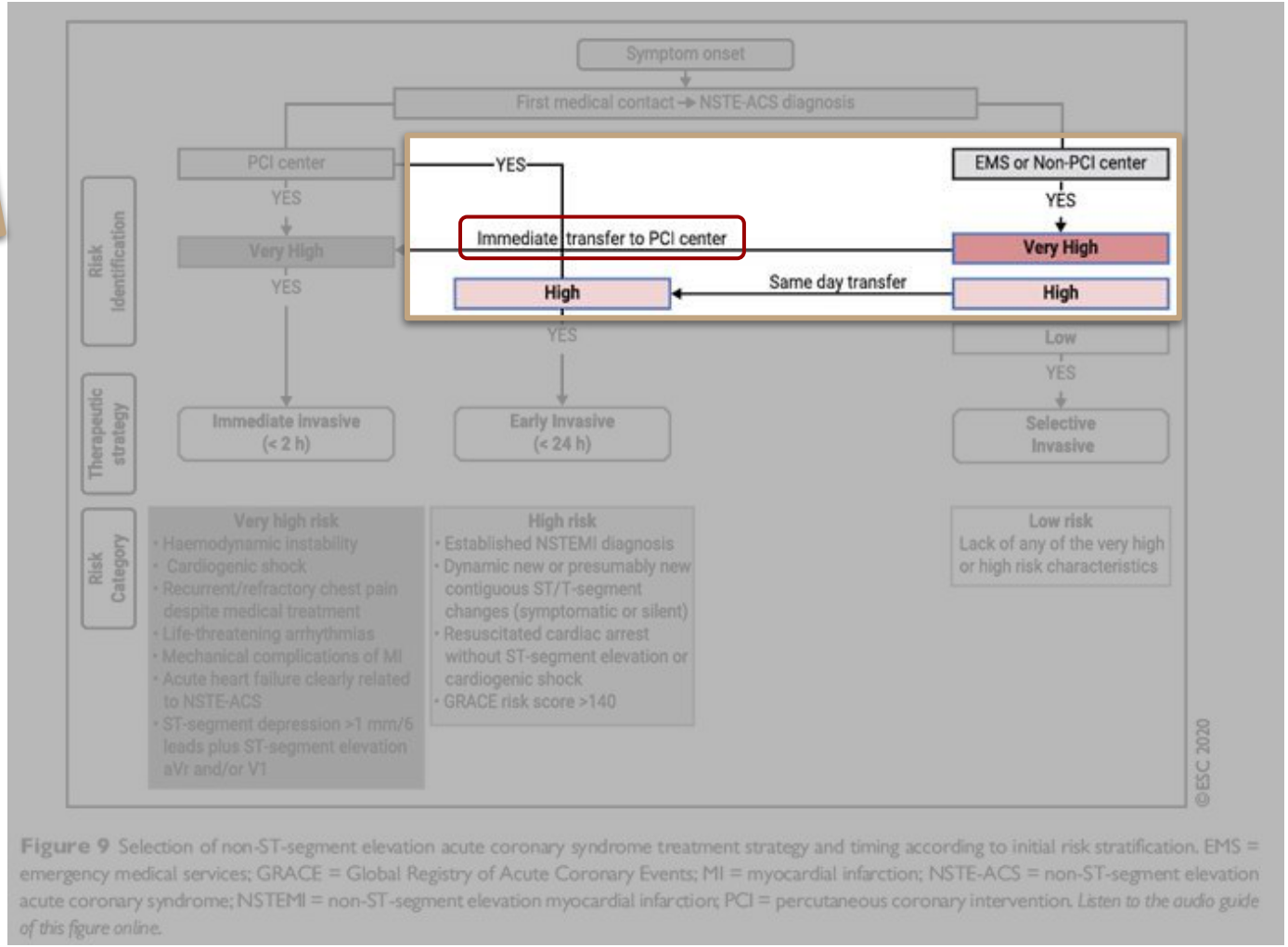
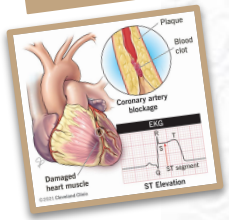


Figure 9 Selection of non-ST-segment elevation acute coronary syndrome treatment strategy and timing according to initial risk stratification. EMS = emergency medical services; GRACE = Global Registry of Acute Coronary Events; MI = myocardial infarction; NSTE-ACS = non-ST-segment elevation acute coronary syndrome; NSTEMI = non-ST-segment elevation myocardial infarction; PCI = percutaneous coronary intervention. *Listen to the audio guide of this figure online.*

ST+

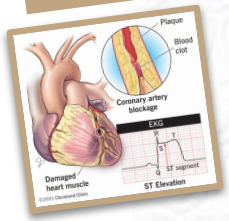


Logistics of prehospital care *(continued)*

ESC European Society of Cardiology

Recommendations	Class	Level
It is recommended that all hospitals and EMS participating in the care of patients with STEMI record and audit delay times and work to achieve and maintain quality targets.	I	C
It is recommended that EMS transfer STEMI patients to a PCI-capable centre, by-passing non-PCI centres.	I	C
It is recommended that EMS, emergency departments, and CCU/ ICCU have a written updated STEMI management protocol, preferably shared within geographic networks.	I	C
It is recommended that patients presenting to a non-PCI-capable hospital and awaiting transportation for primary or rescue PCI are attended in an appropriately monitored area (e.g. the emergency department, CCU/ICCU, intermediate care unit).	I	C

ST+



Reperfusion strategies in the infarct-related artery according to time from symptoms onset

ESC European Society of Cardiology

Early phase of STEMI

0

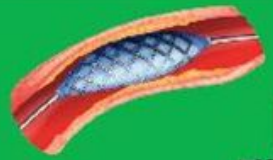
Symptoms onset

3 hours

12 hours

Primary PCI

I A



I A

Fibrinolysis
(only if PCI cannot be performed within120 min from STEMI diagnosis)

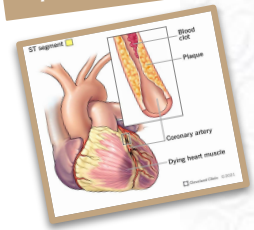
Primary PCI

I A

I A

Fibrinolysis
(only if PCI cannot be performed within120 min from STEMI diagnosis)

NON ST+



Reperfusion therapy *(continued)*

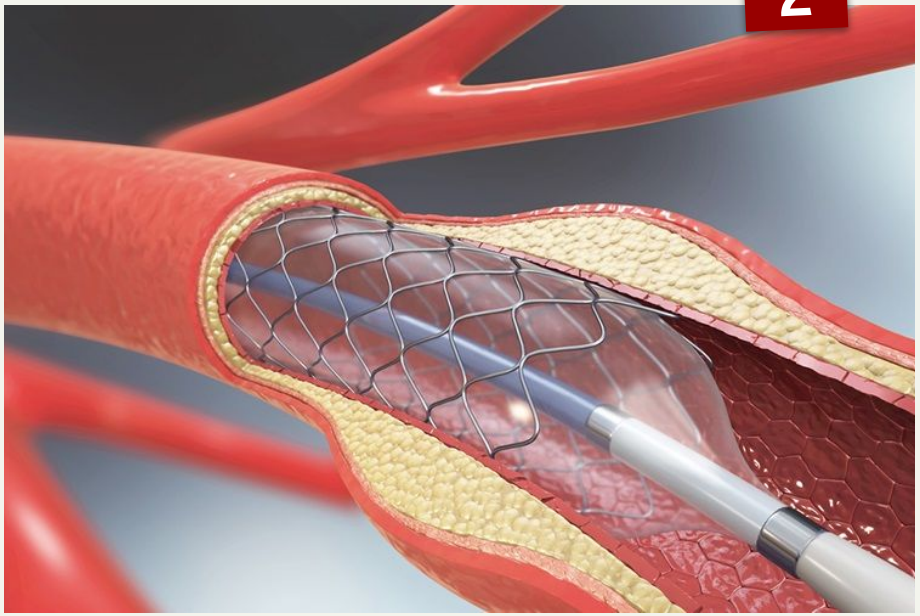
ESC European Society of Cardiology

Recommendations	Class	Level
In the absence of ST-segment elevation, a *primary PCI strategy* is indicated in patients with suspected ongoing ischaemic symptoms suggestive of myocardial infarction and at least one of the following criteria present:		
– haemodynamic instability or cardiogenic shock,		
– recurrent or ongoing chest pain refractory to medical treatment,	I	C
– life-threatening arrhythmias or cardiac arrest,		
– mechanical complications of myocardial infarction,		
– acute heart failure,		
– recurrent dynamic ST-segment or T-wave changes, particularly with intermittent ST-segment elevation.		


Questions pour un Champion

1

2



Original Article

A physician-staffed ground emergency medical service does not significantly shorten door-to-balloon time in patients with STEMI: an observational study in a single emergency center in Japan

Yuki Yoshioka,[1] Ryota Teshima,[1] Mina Gamo,[1] Ryuhei Yoneda,[1] Naoki Matsunaga,[1] Tadaaki Takada,[1] Yasushi Fukuta,[1] and Koichi Kishi[2]

Table 2. Comparison of door-to-balloon time (DTBT) and survival rate among patients with ST-segment elevation myocardial infarction, grouped by prehospital intervention

	RRC (n = 33)	EMS (n = 20)	TRANS (n = 68)	P-value
DTBT (min)	51.0 (43–57)	61.0 (52–68)	59.5 (48–72)	0.130
Survival rate (%)	31 (93.9)	19 (95.0)	66 (97.1)	0.746

EMS, emergency medical service group; RRC, rapid response car group; TRANS, transported group.

Paramedic versus physician-staffed ambulances and prehospital delays in the management of patients with ST-segment elevation myocardial infarction

Artur Borowicz[1], Klaudiusz Nadolny[1,2,3], Kamil Bujak[4], Daniel Cieśla[5], Mariusz Gąsior[4], Bartosz Hudzik[4,6]

Abstract

Background: *Time delays to reperfusion therapy in ST-segment elevation myocardial infarction (STEMI) still remain a considerable drawback in many healthcare systems. Emergency medical service (EMS) has a critical role in the early management of STEMI. Under investigation herein, was whether the use of physician-staffed ambulances leads to shorter pre-hospital delays in STEMI patients.*

Methods: *This was an observational and retrospective study, using data from the registry of the Silesian regional EMS system in Katowice, Poland and the Polish Registry on Acute Coronary Syndromes (PL-ACS) for a study period of January 1, 2013 to December 31, 2016. The study population (n = 717) was divided into two groups: group 1 (n = 546 patients) — physician-staffed ambulances and group 2 (n = 171 patients) — paramedic-staffed ambulances.*

Results: *Responses during the day and night shifts were similar. Paramedic-led ambulances more often transmitted 12-lead electrocardiogram (ECG) to the percutaneous coronary intervention centers. All EMS time intervals were similar in both groups. The type of EMS dispatched to patients (physician-staffed vs. paramedic/nurse-only staffed ambulance) was adjusted for ECG transmission, sex had no impact on in-hospital mortality (odds ratio [OR] 1.41; 95% confidence interval [CI] 0.79–1.95; p = 0.4). However, service time exceeding 42 min was an independent predictor of in-hospital mortality (OR 4.19; 95% CI 1.27–13.89; p = 0.019). In-hospital mortality rate was higher in the two upper quartiles of service time in the entire study population.*

Conclusions: *These findings suggest that both physician-led and paramedic-led ambulances meet the criteria set out by the Polish and European authorities. All EMS time intervals are similar regardless of the type of EMS unit dispatched. A physician being present on board did not have a prognostic impact on outcomes.* (Cardiol J 2021; 28, 1: 110–117)

Paramedic-Delivered Fibrinolysis in the Treatment of ST-Elevation Myocardial Infarction: Comparison of a Physician-Authorized versus Autonomous Paramedic Approach

Paul Davis, Graham J. Howie, Bridget Dicker & Nicholas K. Garrett

Pas moins bien

TABLE 3. Inappropriate fibrinolysis cases and final diagnoses

Case and final diagnosis	*N*	(%)
Pericarditis	3	(33.3)
Upper respiratory tract infection with nonspecific ST-elevation	1	(11.1)
Cardiomyopathy/apical ballooning syndrome	2	(22.3)
Costochondritis with early repolarisation	1	(11.1)
Upper respiratory tract infection with previous left ventricular aneurysm	1	(11.1)
Intra-cranial hemorrhage with raised intracranial pressure	1	(11.1)
Total	**9**	**(100)**

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Très bien

Table 5. Accuracy of autonomous paramedic determination of patient eligibility for fibrinolysis (post-implementation group, $n = 116$)

Accuracy value	(%)	[95% CI]
Sensitivity	(96)	[89–99]
Specificity	(92)	[79–98]
Positive predictive value (PPV)	(96)	[89–99]
Negative predictive value (NPV)	(92)	[79–97]

CI = confidence interval.

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Table 4. Comparison of key treatment time intervals in minutes (median values and interquartile ranges): Pre- versus post-implementation group

	Pre-implementation group ($n = 90$)			Post-implementation group ($n = 75$)			
Treatment time interval	Median	[95% CI]	IQR	Median	[95% CI]	IQR	p-Value
From pain-to-needle (PTN) time[a]	87	[82, 138]	58	65	[60, 110]	41	0.007
From call-to-needle (CTN) time[a]	52	[49, 62]	30	36	[33, 42]	10	<0.001
From EMS contact-to-needle (ETN) time[a]	37	[34, 45]	30	20	[17, 23]	8	<0.001
From first diagnostic STEMI ECG to needle time[a]	24	[24, 31]	24	16	[14, 17]	9	<0.001

EMS = emergency medical services; STEMI = ST-elevation myocardial infarction; ECG = electrocardiogram; CI = confidence interval; IQR = interquartile range. All comparisons between groups were made using Mann-Whitney U tests.

[a]Excludes cases of inappropriate fibrinolysis ($n = 9$).

Plus vite

03

LA MÉDICALISATION

POURQUOI ?

Avantages
Inconvénients

COMMENT ?

En intervention
En régulation

ORIGINAL ARTICLE

Incidence, Mortality, and Outcome-Predictors of Sudden Cardiac Arrest Complicating Myocardial Infarction Prior to Hospital Admission

Quelles complications ?
Le risque d'OHCA

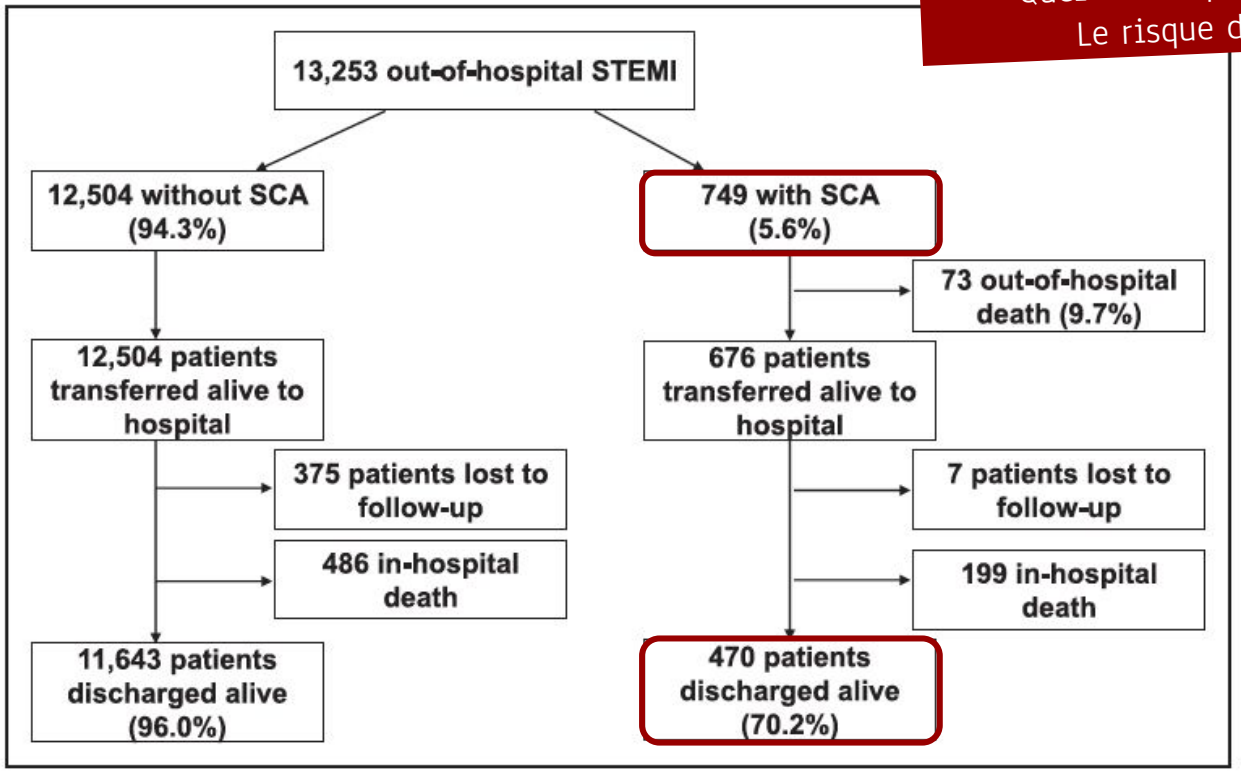


Table 1. Characteristics of the e-MUST Patients

	N	All Patients N=13253	Without SCA N=12504	With SCA N=749	*P* Value
Age					
Median (IQR)	13226	60.1 (51.4–73.0)	60.3 (51.6–73.2)	58.0 (49.1–70.0)	<0.001
≤40, y, n (%)		580 (4.4)	528 (4.2)	52 (7.0)	<0.001
41–50, y, n (%)		2324 (17.6)	2173 (17.4)	151 (20.3)	
51–60, y, n (%)		3689 (27.9)	3479 (27.9)	210 (28.2)	
61–70, y, n (%)		2743 (20.7)	2593 (20.8)	150 (20.1)	
>70, y, n (%)		3890 (29.4)	3708 (29.7)	182 (24.4)	
Men, n (%)	13214	10324 (78.1)	9744 (78.2)	580 (77.5)	0.69
History of CAD, n (%)		2520 (19.5)	2382 (19.5)	138 (18.7)	0.56
No. of risk factors, n (%)					
No risk factor	12924	1432 (11.1)	1305 (10.7)	127 (17.2)	<0.001
One risk factor		3979 (30.8)	3714 (30.5)	265 (35.9)	
≥2 risk factors		7513 (58.1)	7166 (58.8)	347 (47.0)	
Localization, n (%)	13104				
Anterior		5884 (44.9)	5480 (44.3)	404 (55.0)	<0.001
Inferior		6009 (45.9)	5770 (46.6)	239 (32.5)	
Extensive		1211 (9.2)	1119 (9.0)	92 (12.5)	
Heart Failure, n (%)	13253	1153 (8.7)	969 (7.7)	184 (24.6)	<0.001
Chest pain onset-to-call delay					
Median (IQR)	13009	60.0 (25.0–163)	61.0		
≤30, min, n (%)		4074 (31.2)	37		
31–60, min, n (%)		2581 (19.8)	24		
61–120, min, n (%)		2280 (17.5)	218	99 (13.8)	
>120, min, n (%)		4123 (31.6)	3999 (32.4)	124 (17.3)	
Call-to-EMS arrival delay					
Median (IQR)	13009	20 (15–29)	20 (15–29)	19 (13–29)	0.002
≤15, min, n (%)		4004 (30.8)	3733 (30.4)	271 (36.8)	0.002
15–20, min, n (%)		2886 (22.2)	2744 (22.4)	142 (19.3)	
21–30, min, n (%)		3320 (25.5)	3154 (25.7)	166 (22.5)	
>30, min, n (%)		2799 (21.5)	2641 (21.5)	158 (21.4)	
Prehospital Thrombolysis	13172	1688 (12.82)	1483 (11.93)	205 (27.67)	<0.0001
Inhospital management,* n (%)					
Coronary angiography	13180	12307 (93.4)	11678 (93.4)	630 (93.0)	0.7
PCI	13180	10395 (78.9)	9857 (78.8)	538 (79.6)	0.6
No revascularization attempt	13253	485 (3.66)	455 (3.64)	30 (4.01)	0.60
Coronary artery bypass	13253	32 (0.24)	30 (0.24)	2 (0.27)	0.70
Survival, n (%)					
At hospital admission	13253	13180 (99.4%)	12504 (100%)	676 (90.2%)	<0.001
At hospital discharge	12871	12113 (94.1%)	11643 (96.0%)	470 (63.3%)	<0.001

Comparison between patients with and without SCA using Student or Kruskal Wallis or χ^2 test as appropriate. CAD indicates coronary artery disease; e-MUST, Evaluation en Médecine d'Urgence des Stratégies Thérapeutiques des infarctus du myocarde; EMS, emergency medical services; IQR, interquartile range; PCI, percutaneous coronary intervention; and SCA, sudden cardiac arrest.
*Among patients alive at hospital admission.

Quels patients font l'OHCA ?

Table 2. Characteristics of SCA Patients Who Died Before Hospital Admission Compared With Patients Admitted Alive

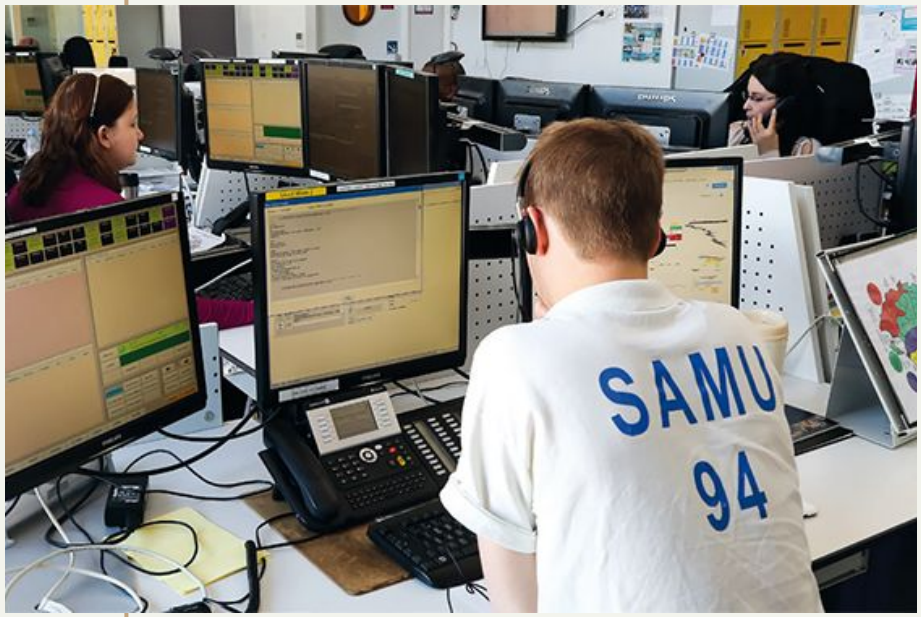
	N	Dead Before Hospital N=73	Admitted Alive N=676	*P* Value
Age	745			
Median (IQR)		71.7 (57.2–81.1)	57.4 (49.0–67.0)	<0.001
≤40, y, n (%)		1 (1.4)	51 (7.6)	<0.001
41–50, y, n (%)		2 (2.8)	149 (22.1)	
51–60, y, n (%)		18 (25.0)	192 (28.5)	
61–70, y, n (%)		12 (16.7)	138 (20.5)	
>70, y, n (%)		39 (54.2)	143 (21.2)	
Men, n (%)	748	51 (69.9)	529 (78.4)	0.10
History of CAD, n (%)	739	23 (31.5)	115 (17.3)	0.003
No. of risk factors	739			
No risk factor		23 (31.5)	104 (15.6)	0.002
One risk factor		25 (34.2)	240 (36.0)	
≥2 risk factors		25 (34.2)	322 (48.3)	
Localization	735			
Anterior		38 (53.5)	366 (55.1)	0.9
Inferior		23 (32.4)	216 (32.5)	
Extensive		10 (14.1)	82 (12.3)	
Heart failure, n (%)	749	34 (46.6)	150 (22.2)	<0.001
Chest pain onset-to-call delay	717			
Median (IQR)		40.5 (14.0–93.0)	31.0 (12.0–75.0)	0.30
≤30, min, n (%)		29 (41.4)	319 (49.3)	0.5
31–60, min, n (%)		14 (20.0)	132 (20.4)	
61–120, min, n (%)		11 (15.7)	88 (13.6)	
>120, min, n (%)		16 (22.9)	108 (16.7)	
Call-to-EMS arrival delay	737			
Median (IQR)		22 (16–34)	18 (13–27)	0.007
≤15, min		16 (22.9)	255 (38.2)	0.02
15–20, min		14 (20.0)	128 (19.2)	
21–30, min		16 (22.9)	150 (22.5)	
>30, min		24 (34.3)	134 (20.1)	

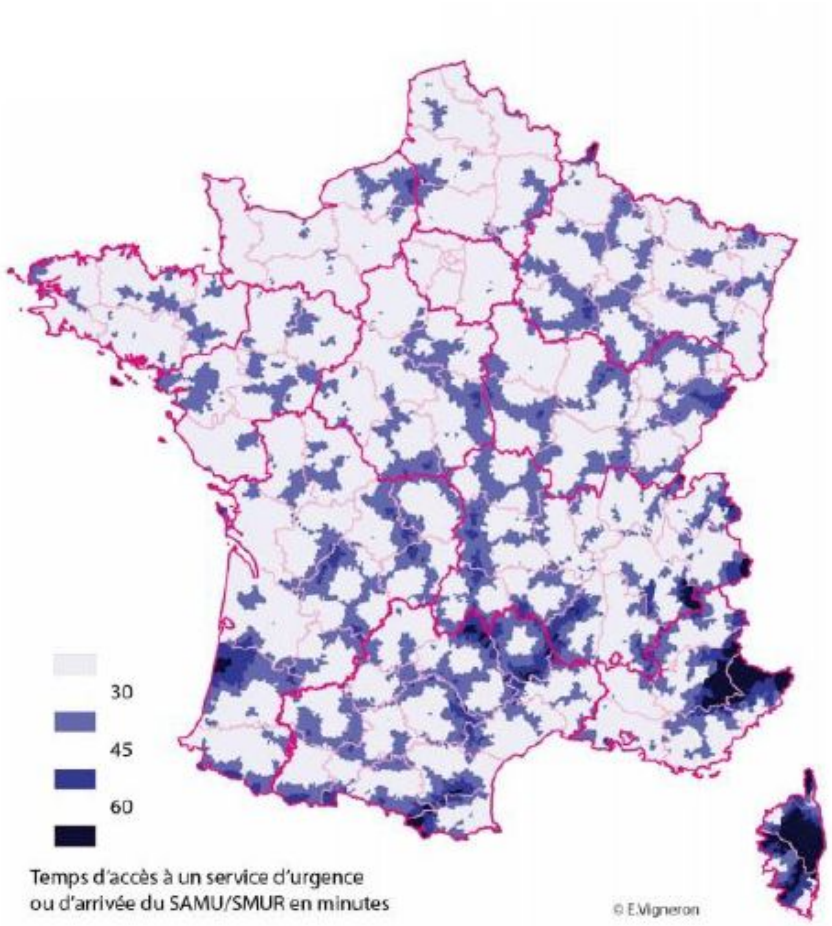
CAD indicates coronary artery disease; IQR, interquartile range; and EMS, emergency medical services.

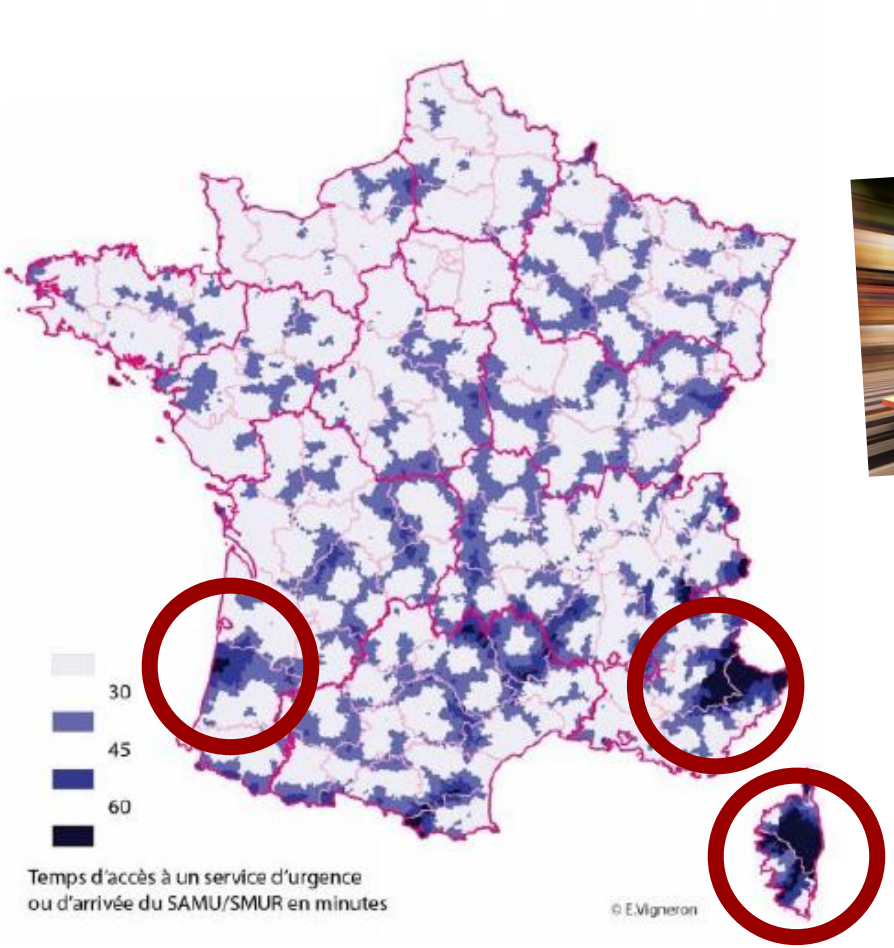
Quel niveau de “médicalisation” ?

- **Primaires**
  - ST +, non-ST+ ?
  - Patients plus graves ?
  - Temporalité restreinte
  - Bypass vers KT
- **Transferts**
  - TIIH ?
  - ATSU ?
- **Médicalisation**
  - D’emblée maximale ?
  - Renfort secondaire ? (UK, Suisse, Japon, US…)

Quand médicaliser ?




30
45
60
Temps d'accès à un service d'urgence
ou d'arrivée du SAMU/SMUR en minutes
© E.Vigneron


30
45
60
Temps d'accès à un service d'urgence
ou d'arrivée du SAMU/SMUR en minutes
© E.Vigneron


SAMU


Phosphate
de
Soude
FERMENTS LACTIQUES
LE PECQ

Base Questions > 2014

Lutte contre la désertification médicale et promesse présidentielle d'un accès facilité pour tous à un service de soins d'urgences

14e législature

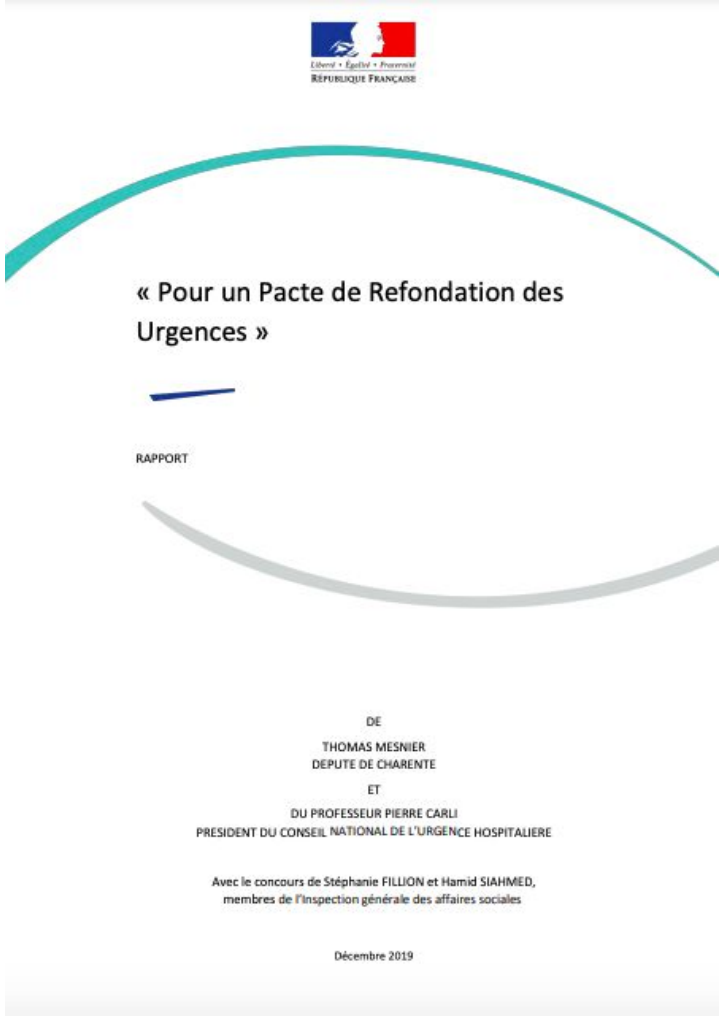
Question écrite n° 10488 de M. Gérard Cornu (Eure-et-Loir - UMP)

publiée dans le JO Sénat du 20/02/2014 - page 449

M. Gérard Cornu attire l'attention de Mme la ministre des affaires sociales et de la santé sur l'annonce qu'elle a faite le 11 février 2014. Rappelant l'engagement qu'avait pris le candidat Hollande lors de l'élection présidentielle de placer chaque Français à moins de trente minutes d'un service de soins urgents, il relève qu'elle annonce que le Gouvernement veut diminuer de moitié le nombre de Français éloignés de plus de trente minutes d'un accès à des soins urgents, de deux millions de personnes en 2012 à « moins d'un million » fin 2014.

Il lui serait reconnaissant de bien vouloir lui préciser les mesures qu'elle envisage de prendre pour atteindre ce résultat.

Transmise au Ministère des affaires sociales, de la santé et des droits des femmes



3.2.1.1 Placer la régulation médicale au centre des parcours de soins d'urgence mais aussi des soins non programmés

Le renforcement de la régulation médicale est plus que jamais d'actualité. Ce filtre pré hospitalier téléphonique constitue un des moyens de modérer l'accès aux SAU, de réorienter les appelants vers les parcours de soins non programmé et de les conseiller. Il nécessite le développement de la permanence des soins ambulatoires téléphonique et son extension H24 qui pour l'instant n'est accessible que dans certains grands centres urbains. Ce renforcement est à la fois quantitatif pour les services sous dotés permettant d'améliorer la rapidité de réponse notamment en cas de pics d'appels. Il est aussi qualitatif en sécurisant les réponses et en identifiant dans les flux des appels ceux qui sont prioritaires. Des organisations spécifiques (gestions des appels à deux niveaux par exemple) permettent d'atteindre ces objectifs et de nouvelles technologies sont en cours de développement, en exploitant notamment l'apport de l'intelligence artificielle. La reconnaissance du renforcement des compétences des ARM des CRRA-centre15 s'associe à l'attribution d'une prime spécifique et la généralisation de leur formation dans les centres de formation d'assistant de régulation médicale (CFAR).

Rapport Mesnier, 2019

BOARD RÉGULATION

- Expertises pour les questions relatives à la régulation médicale auprès de la SFMU
- Développer des liens avec les boards SFMU
- Développer la recherche en régulation médicale
- Assurer une veille scientifique avec actualité régulière sur les articles à ne pas manquer
- Favoriser l'interprofessionnalité
- Enrichir les liens avec les autres sociétés ou représentations professionnelle

- **Chantier 1 :** réaliser un état des lieux de la régulation médicale en France
- **Chantier 2 :** assurer une veille scientifique
- **Chantier 3 :** développer la recherche en régulation médicale
- **Chantier 4 :** valoriser l'expertise du board

Le vrai mot de la fin ?

- La **régulation** est indispensable et centrale
- Un **haut niveau de soins** (adaptés) doit être la règle
  - Pas de dégradation systémique
- Chaque **décision est adaptée** à toutes les **contraintes**
  - territoires et accessibilité
- Pas de dogmatisme “tout blanc vs. tout noir”
- La stratégie globale doit être cohérente **santé / secours**


1938
PARIS
PARIS

Les mardis scientifiques de la BSPP
12 avril 2022

MERCI POUR VOTRE ATTENTION

Dr Matthieu HEIDET, MD PhD
SAMU 94 & Urgences Mondor, Créteil
matthieu.heidet@aphp.fr