

CENTRE HOSPITALIER MONTBARD, France

French Hospital System Improves Management of Chest Pain Patients & Reduces Unnecessary CCU Admissions

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BACKGROUND: A REAL RACE AGAINST TIME

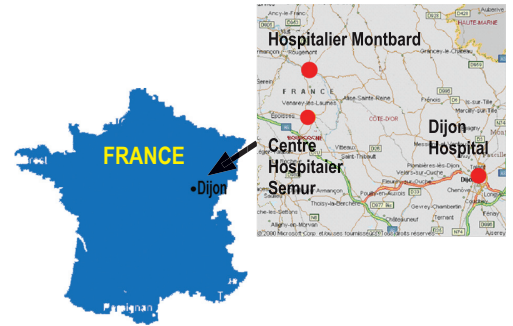
The task of properly tending to a chest-pain patient in the back of a speeding ambulance is challenging enough on its own terms. But the physicians stationed in those ambulances in a community two-and-a-half hours outside of Paris have an extra challenge to contend with. A patient experiencing chest pain may not necessarily have a heart attack. The physicians are challenged to make rapid and accurate decisions of whether to direct the driver to head toward the emergency department (ED) and chest pain unit (CPU) at a community hospital in Montbard for further evaluation, or to head 35 kilometers in the opposite direction to the cardiac-care unit (CCU) at Centre Hospitalier Semur. In some cases, it's a decision with life-or-death implications. Until recently, without the means to quickly and definitively determine which chest-pain patients were actually experiencing acute myocardial infarction (AMI), ambulance physicians naturally erred on the side of caution and referred all chest pain patients to the CCU in Semur. While necessary under the circumstances to ensure patients' safety, this policy often resulted in inefficiencies that taxed both hospitals' limited resources.

OBJECTIVE: BETTER PATIENT TRIAGING IN THE AMBULANCE; BETTER MANAGEMENT IN THE ED

Montbard administrators recognized that providing ambulance physicians with a clear and accurate picture of a patient's cardiac profile would make better use of both facilities' capabilities by ensuring patients were immediately transported to the most appropriate hospital. They also believed that the same cardiac snapshot taken a few hours later, coupled with ECG results and other diagnostic measures, would enable Montbard's ED physicians to determine with confidence whether patients should be discharged, admitted, or transferred either to Semur's CCU or to a cardiac catheterization lab at another medical center in nearby Dijon.

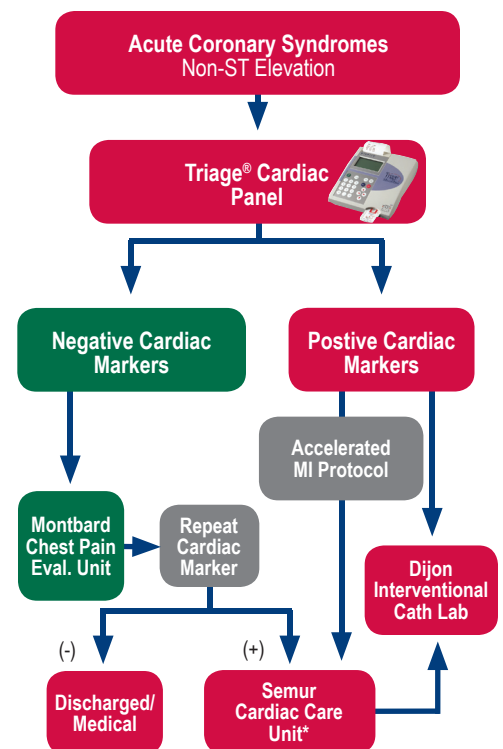
METHODOLOGY: CREATE A CHEST PAIN PROTOCOL WITH SERIAL DRAWS

As part of a comprehensive chest-pain management strategy to ensure optimal care while reducing unnecessary admissions and prolonged ED stays, the Centre Hospitalier Montbard system adopted Biosite's Triage® Cardiac Panel in April 2002. The Triage Cardiac Panel — a one-step, whole-blood test that produces results in approximately 15 minutes — simultaneously measures levels of myoglobin,



	Montbard	Semur
ED	X	X
Critical Care Unit		X
Chest Pain Evaluation Unit	X	
Laboratory		X
Cath Lab	Only available at Dijon University Hospital	

Chest Pain Protocol



* According to availability

CK-MB and troponin I. Taken together, these results better enable physicians to confidently rule-in, or rule-out, AMI. In the ambulance, a positive cardiac marker result would send patients directly to the CCU at Semur, while a negative result would send the patient to a holding area in Montbard's CPU, where the test could be repeated in the sixth hour of stay. For walk-in patients, the Triage Cardiac Panel would be administered upon arrival and again six hours later. A total of 329 patients were included in an initial study of this new cardiac protocol. Of those, 109 arrived via ambulance, while the remaining 220 were walk-ins.

RESULTS: SIGNIFICANT REDUCTION IN CCU ADMISSIONS & COST

The Montbard system achieved an immediate and dramatic reduction in unnecessary CCU and inpatient admissions, as well as a reduction in nonessential transfers between the two hospitals.

Only 47% of the 109 ambulance chest pain patients were admitted to Semur's CCU — a dramatic reduction from the 100% dictated by past protocols: 33% were taken directly to the CCU at Semur, and an additional 14% of the patients, originally sent to Montbard, were transferred to Semur's CCU based on their second Triage results. Twenty eight percent of patients were taken by ambulance to Montbard to be medically managed, while 25% were discharged directly from Montbard's CPU. Of the 220 walk-in patients tested with Triage Cardiac Panel at Montbard's ED, 12% were immediately transferred to Semur's CCU, while 10% were sent to the CCU following positive Triage results six hours later. Based on negative results on both the initial and follow-up tests, 32% of the patients received medical treatment, while 44% were able to return home.

Based on this patient sample, the physicians who oversaw the Montbard study pegged the total cost savings attributable to the adoption of a chest pain patient algorithm incorporating Triage Cardiac Panel at 236,000 euros (approximately US \$300,000).

CONCLUSION

Montbard intends to implement a 90-minute algorithm to replace the current 6-hour testing interval, a change physicians and administrators expect will produce even greater gains in patient care, ED efficiency and economic benefit.

"Our findings point to the fact that Triage Cardiac must be part of the basic equipment in the ED ... just as the ECG is." — Dr. Jean Pierre Rifler, (Chef de Service des Urgences-SMUR, Montbard) the study's lead investigator.

REFERENCES

1. Abstract presented at Journées annuelles de médecine d'urgence in Beaune in October 2002
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- Study of 329 patients with new protocol
- 109 chest pain patients arrived via the ambulance
- 220 patients were walk-ins

With rapid cardiac testing, the Hospitalier Montbard achieved:

- Accurate and rapid triage of chest pain patients
- Only 47% (down from 100%) of ambulance chest pain patients admitted to Semur's CCU
- Up to 44% of chest pain patients in Montbard's chest pain unit discharged
- Cost savings of approximately 236,000 euros (US \$300,000)

Cost Savings in Effective Utilization of Resources

