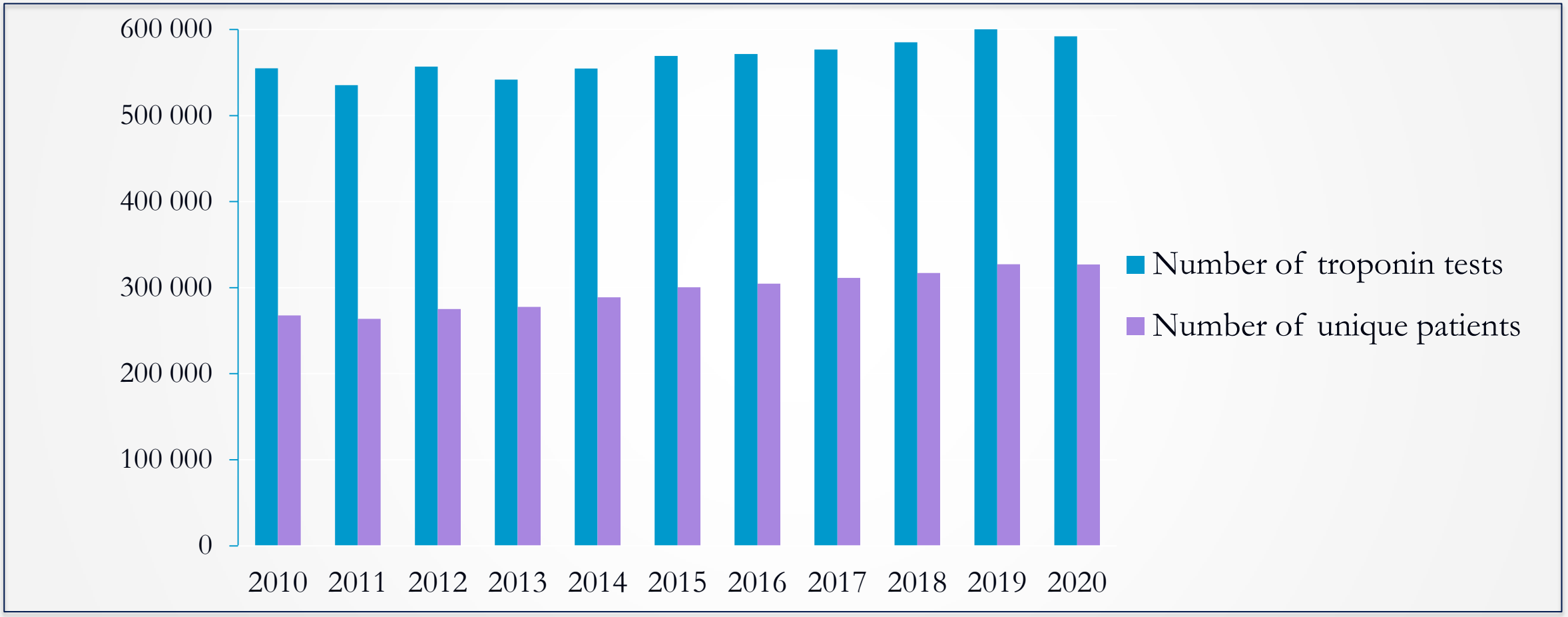
INTERNÍ KARDIOLOGICKÁ KLINIKA
FN BRNO a LF MU

Prospective comparison of 0/1h and 0/3h rule out/rule in algorithms for myocardial infarction

V.Jakubo, P. Lokaj, A. Křivanová, H. Šimáčková, M. Doleček,
P. Kala, M. Beňovská, J. Pařenica

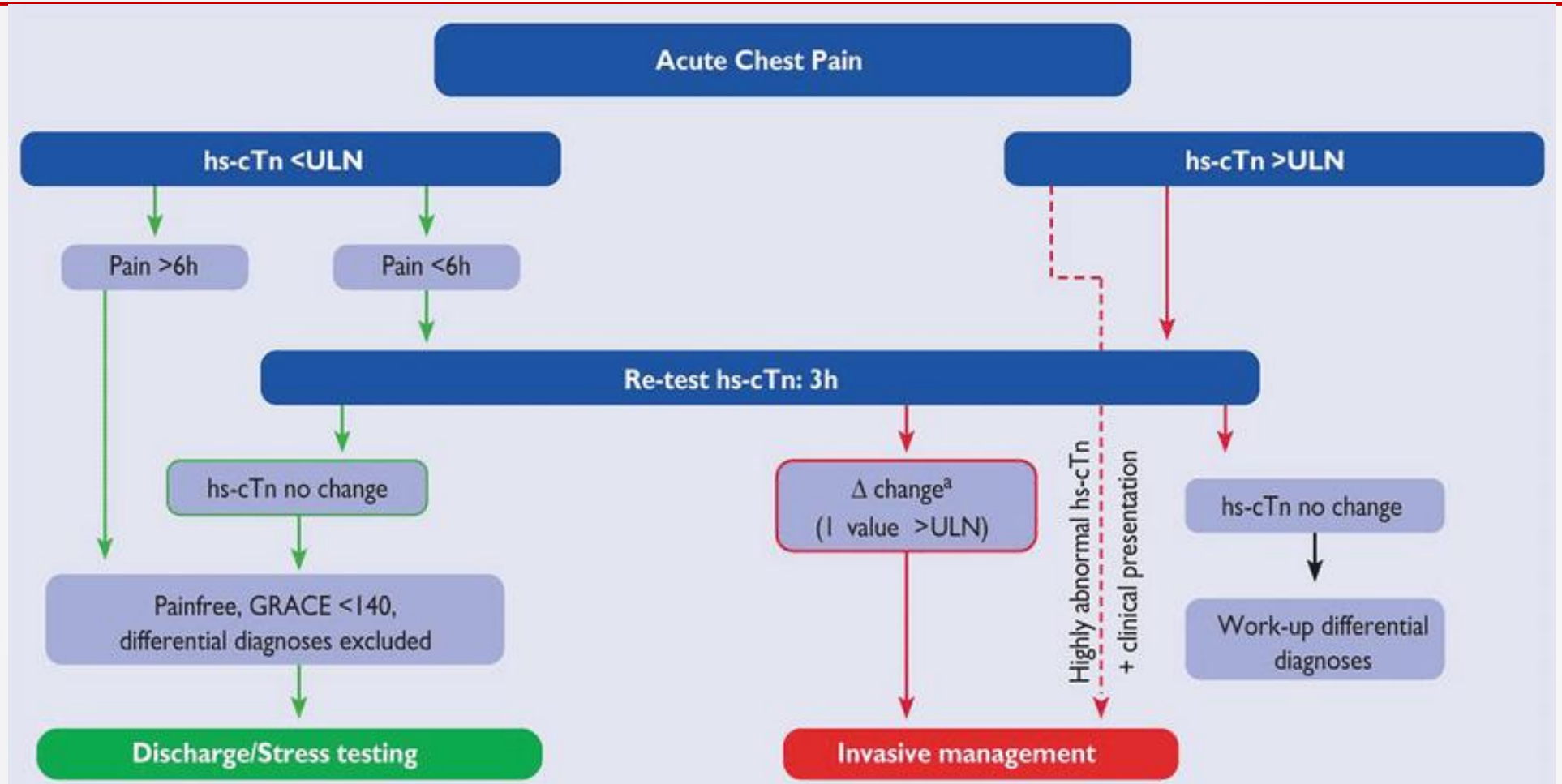
FAKULTNÍ NEMOCNICE BRNO
MUNI MED

Troponin I/T testing in Czechia 2010-2020



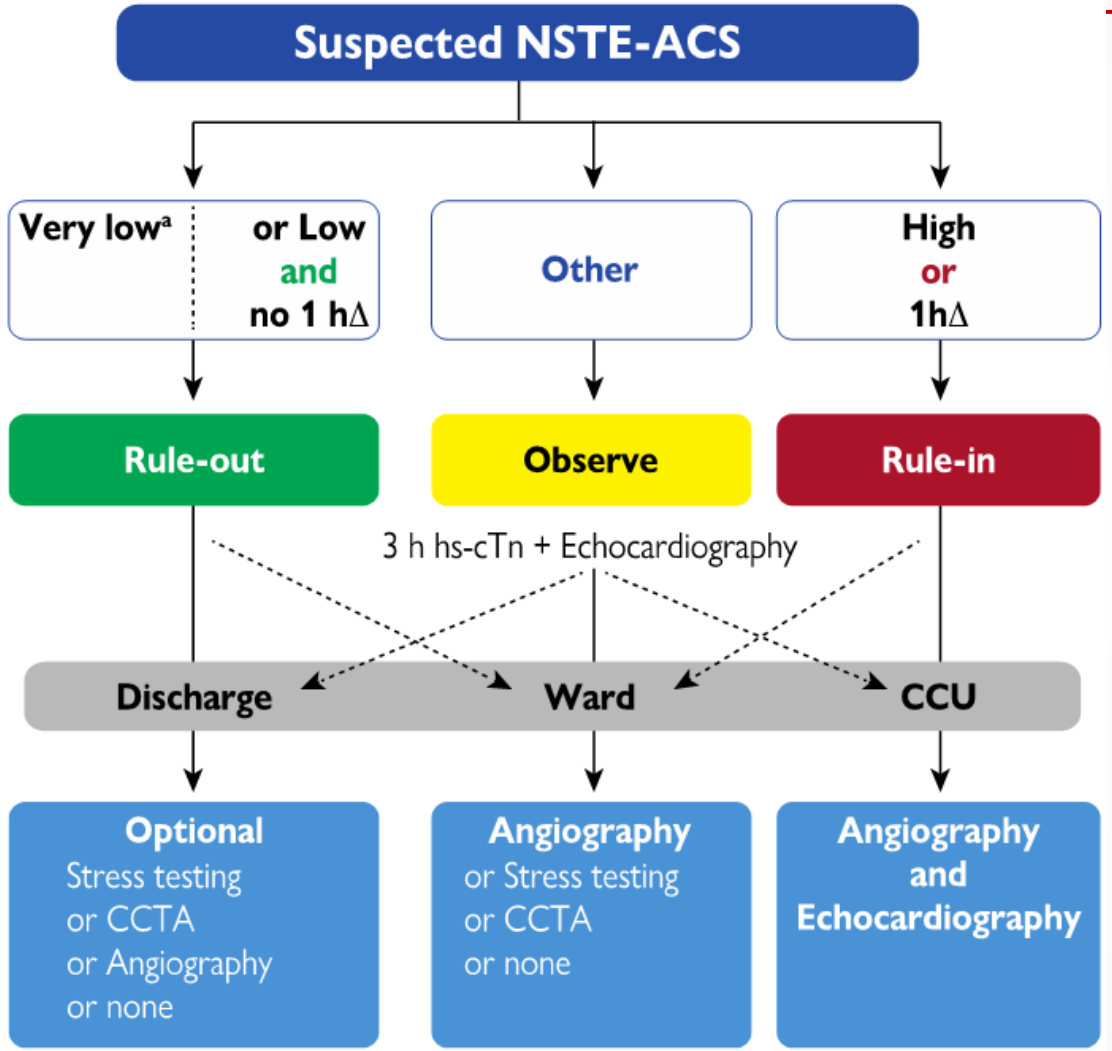
UZIS, 2021

0/3 h ESC algorithm

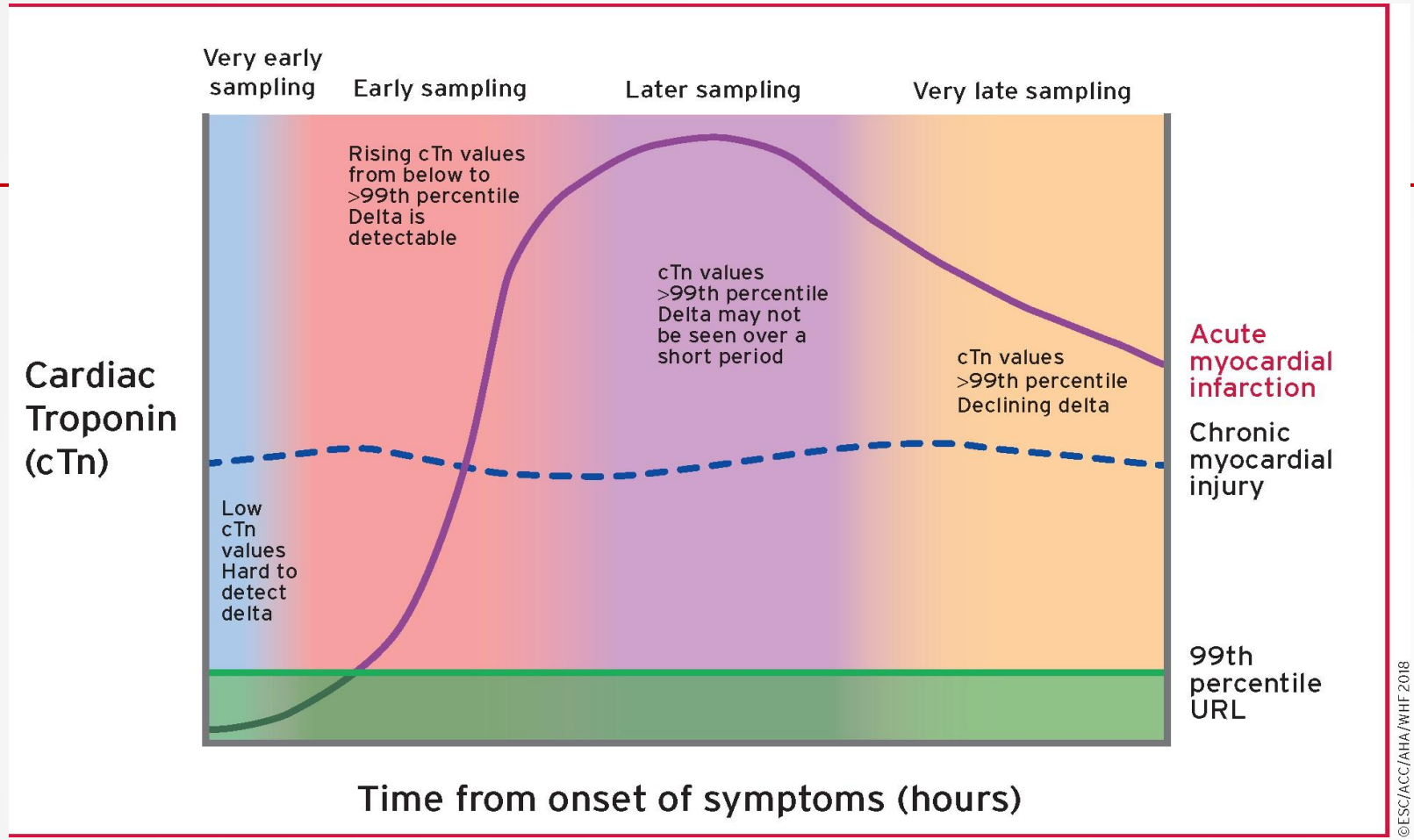


GRACE = Global Registry of Acute Coronary Events score; hs-cTn = high sensitivity cardiac troponin; ULN = upper limit of normal, 99th percentile of healthy controls.
[a]Δ change, dependent on assay. Highly abnormal hsTn defines values beyond 5-fold the upper limit of normal.

0/1 h ESC algorithm



0 h/1 h algorithm	Very low	Low	No 1h Δ	High	1h Δ
hs-cTn T (Elecsys; Roche)	<5	<12	<3	≥52	≥5

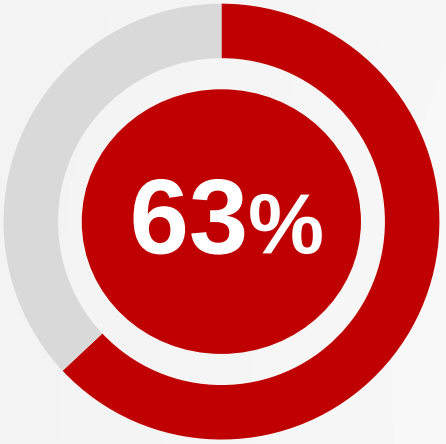


Eur Heart J, Volume 40, Issue 3, 14 January 2019, Pages 237–269

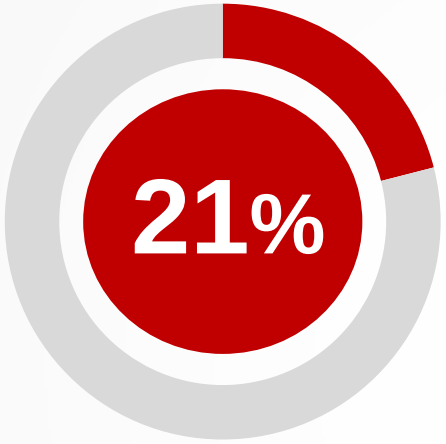
Aim: To compare 0/1h and 0/3h rule-in/rule-out alghoritms in real clinical practice, evaluation of safety (NPV for rule-out, survival rate during follow-up) and accuracy (PPV for rule-in).

- **Inclusion criteria:** patients at ED with suspected acute coronary syndrom, informed consent
- **Exclusion criteria:** STEMI, renal failure on chronic dialysis
- **Final diagnosis:** 4th UDMI, utilizing all undertaken exams (angiography, ECHO, CMR, stress test,…)
- **Follow-up:** 3 months

784 patients, mean age 62y

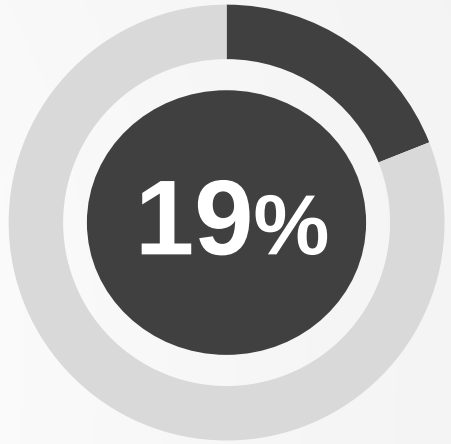


Men

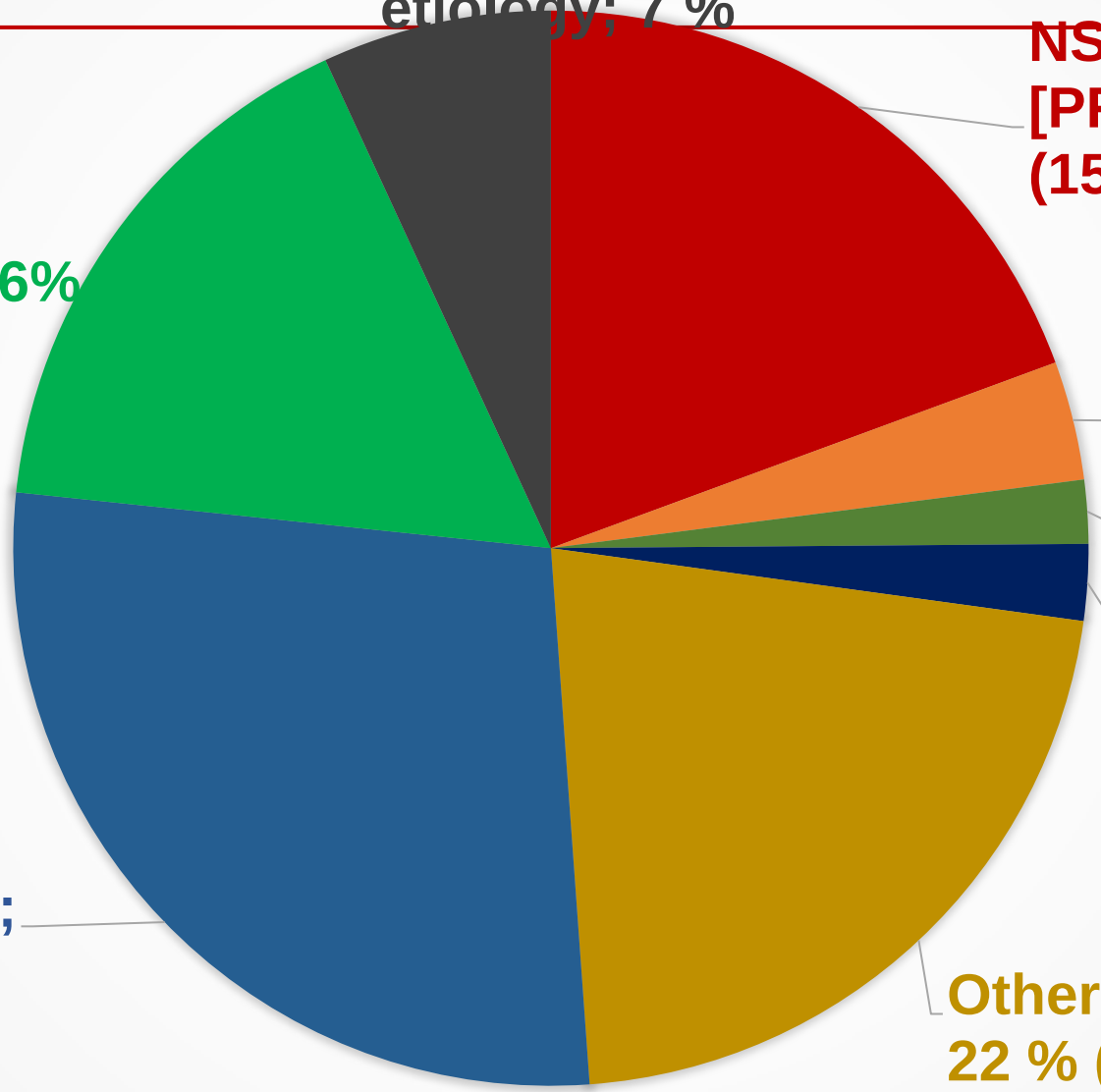


Diabetes

Under 40



After PCI/CABG

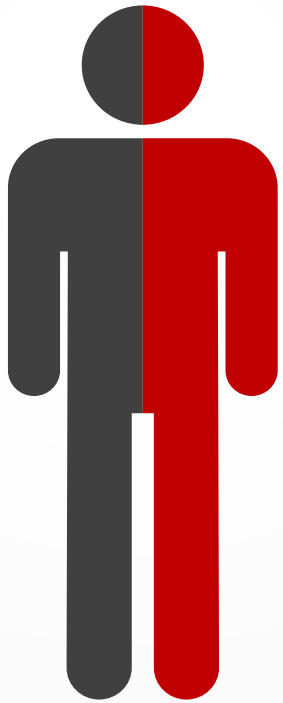

Uncertain etiology; 7 %
NSTEMI; [PROCENTO] (152)
Unstable angina; 4 % ([HODNOTA])
Myocarditis; 2 % ([HODNOTA])
Pulm. embolism; 2 % (18)
Other cardiac; 22 % (170)
Musculoskeletal; [PROCENTO] (218)
Other noncardiac; 16% (129)

192 patients underwent invasive aniography

120 patients underwent revascularization

83% PCI

17% CABG



69% MI

57% UA

	0/1h	0/3h
RULE-IN	177 (22,6 %)	179 (22,8 %)
NSTEMI IN RULE-IN	107 (70,4 % of MI)	108 (71,2 % of MI)
OBSERVE	225 (28,7 %)	170 (21,7 %)
NSTEMI IN OBSERVE	43 (28,3 % of MI)	39 (25,6 % of MI)
RULE-OUT	382 (48.7 %)	435 (55,5 %)
NSTEMI IN RULE-OUT	2 (1,3 % of MI)	5 (3,2 % of MI)

Results

	0/1H	0/3H
NPV for rule-out	99,5 %	98,9 %
PPV for rule-in	61,2 %	62,7 %
Sensitivity	98,2 %	95,6 %
Specificity	84,4 %	85,8 %

0 death and 0 MI during follow-up of patients triaged to rule-out group (by both protocols),

1 death + 2 myocardial infarctions in the observe group (by both protocols),

and 1 death + 1 recurrence of MI in the rule-in group (by both protocols).

Take home mesages

- Both ESC algorithms are safe, 0/1h is timesaving
- Significant coronary artery stenosis might exist in patients with unstable angina in rule-out or observe groups, clinical judgment is vital.
- Other serious conditions than MI requesting inpatient management may be present in rule-out patients.

Thank you for your attention