

Tests, treatments and procedures at risk of inappropriateness in Italy  
that Physicians and Patients should talk about.

**Five Recommendations from the Italian Association of Hospital Cardiologists (ANMCO)**

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| <b>1</b> | <p><b>Do not request inductive ischemia testing (stress test and other inductive ischemia tests) as a routine check-up in asymptomatic patients who have undergone surgical or percutaneous revascularization within 2 years from the procedure.</b></p> <p>There are no data to support that early diagnosis of silent ischemia improves patient outcomes or that repeat guided by ischemia testing revascularization reduces mortality.</p>   |
| <b>2</b> | <p><b>Do not request a Holter ECG in patients with palpitations or syncope less than once a week.</b></p> <p>The reduced frequency of episodes could lead to false negatives with an unfavorable cost-benefit balance.</p>  |
| <b>3</b> | <p><b>Do not request annual follow-up echocardiography in patients with known mild-to-moderate valvular disease in the absence of new symptoms or clinical events and in patients with known mild left ventricular dysfunction in the absence of new symptoms or clinical events.</b></p> <p>Since mild-moderate valvular disease generally has a slow progression, echocardiography should be performed more frequently only in the presence of changes in clinical status. Transthoracic echocardiography is indicated to investigate the appearance of new symptoms, their possible worsening and to determine the prognosis in patients with first-time heart failure: routine repetition of the echocardiogram in patients with known mild left ventricular dysfunction is not indicated in the absence of any changes in clinical status.</p> |
| <b>4</b> | <p><b>Do not request routine coronary angiography in all patients with heart failure with reduced systolic function, asymptomatic for angina pectoris, and without signs of inducible ischemia, with low pretest probability of coronary artery disease or in the absence of known anatomy favorable to further revascularization.</b></p> <p>Coronary angiography may be considered in patients with heart failure with reduced ejection fraction with an intermediate-high pre-test probability of coronary artery disease, in the presence of inducible ischemia, and in the presence of coronary anatomy favorable to revascularization.</p>  |
| <b>5</b> | <p><b>Do not request stress testing for inducible ischemia.</b></p> <p>It is not appropriate to use stress testing to diagnose obstructive coronary artery disease as a first-line test, as it has extremely limited diagnostic power in recognizing or excluding significant coronary artery disease. Stress testing may be considered for the diagnosis of obstructive coronary artery disease if imaging tests are not available.</p>  |

Please note that these items are provided only for information and are not intended as a substitute for consultation with a clinician. Patients with any specific questions about the items on this list or their individual situation should consult their clinician.

## How this list was created

The National Board of Directors of ANMCO established a working group in 2014, with the task of identifying the 5 practices at greatest risk of inappropriateness. Recently, ANMCO established a working group coordinated by the Management and Quality Area with the aim of identifying, in light of the most recent guidelines and through the "brainstorming" methodology, the 5 cardiology practices that are currently at greatest risk of inappropriateness in Italy. 23 practices potentially at risk of inappropriateness were identified, then submitted to a vote by the members of the working group, and a score was assigned according to pre-established criteria. On the basis of the highest scores, the 5 recommendations on the practices at greatest risk of inappropriateness were then defined (2024 revision).

## Sources

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| <b>2</b> | <ol style="list-style-type: none"> <li>1. Brignole M, Moya A, de Lange FJ, et al. 2018 ESC Guidelines for the diagnosis and management of syncope. <i>Eur Heart J</i> 2018;39:1883-1948 doi: 10.1093/eurheartj/ehy037</li> <li>2. Steinberg JS, Varma N, Cygankiewicz I, et al. 2017 ISHNE-HRS expert consensus statement on ambulatory ECG and external cardiac monitoring/telemetry. <i>Heart Rhythm</i> 2017;14:e55-96. doi: 10.1016/j.hrthm.2017.03.038.</li> <li>3. Piccirilli S, Gallagher MM, Vellini M, et al. Appropriateness of ECG Holter requests in an outpatient service: a prospective study. <i>J Cardiovasc Med (Hagerstown)</i> 2007;8:517-20. doi: 10.2459/01.JCM.0000278449.96988.82.</li> </ol>  |
| <b>3</b> | <ol style="list-style-type: none"> <li>1. Nardi F, Pino PG, Gabrielli D, et al. Documento di consenso ANMCO/SI CI-GISE/SIC/SIECVI/SIRM: Appropriateness dell'imaging multimodale nelle patologie cardiovascolari. <i>G Ital Cardiol</i> 2020;21:34- 88. doi: 10.1714/3285.32588.</li> <li>2. Steeds RP, Garbi M, Cardim N, et al. EACVI appropriateness criteria for the use of transthoracic echocardiography in adults: a report of literature and current practice review. <i>Eur Heart J Cardiovasc Imaging</i> 2017;18:1191-204. doi: 10.1093/ehjci/jew333.</li> <li>3. Otto CM, Nishimura RA, Bonow RO, et al. 2020 ACC/AHA Guideline for the management of patients with valvular heart disease: executive summary: a report of the American College of Cardiology/ American Heart Association Joint Committee on Clinical Practice Guidelines. <i>Circulation</i> 2021;143:e35-71. doi: 10.1161/CIR.0000000000000932.</li> <li>4. McDonagh TA, Metra M, Adamo M, et al. 2021 ESC Guidelines for the diagnosis and treatment of acute and chronic heart failure. <i>Eur Heart J</i> 2021;42:3599-726. doi: 10.1093/eurheartj/ehab368.</li> </ol> |
| <b>4</b> | <ol style="list-style-type: none"> <li>1. Ferreira JP, Rossignol P, Demissei B, et al. Coronary angiography in worsening heart failure: determinants, findings and prognostic implications. <i>Heart</i> 2018;104:606-613. doi: 10.1136/heartjnl-2017-311750.</li> <li>2. McDonagh TA, Metra M, Adamo M, et al. 2021 ESC Guidelines for the diagnosis and treatment of acute and chronic heart failure. <i>Eur Heart J</i> 2021;42:3599-3726 doi: 10.1093/eurheartj/ehab368.</li> <li>3. Perera D, Clayton T, O'Kane PD, et al.; REVIVED-BCIS2 Investigators. Percutaneous revascularization for ischemic left ventricular dysfunction. <i>N Engl J Med</i> 2022;387:1351-1360 doi:10.1056/NEJMoa2206606.</li> </ol>  |
| <b>5</b> | <ol style="list-style-type: none"> <li>1. Knuuti J, Ballo H, Juarez-Orozco LE, et al. The performance of non-invasive tests to rule-in and rule-out significant coronary artery stenosis in patients with stable angina: a meta-analysis focused on post-test disease probability. <i>Eur Heart J</i> 2018;39:3322-3330. doi: 10.1093/eurheartj/ehy267.</li> <li>2. Zacharias K, Ahmed A, Shah BN, et al. Relative clinical and economic impact of exercise echocardiography vs. exercise electrocardiography, as first line investigation in patients without known coronary artery disease and new stable angina: a randomized prospective study. <i>Eur Heart J Cardiovasc Imaging</i> 2017;18:195-202. doi: 10.1093/ehjci/jew049.</li> <li>3. Williams MC, Hunter A, Shah ASV, et al. Use of coronary computed tomographic angiography to guide management of patients with coronary disease. <i>J Am Coll Cardiol</i> 2016;67:1759-1768. doi: 10.1016/j.jacc.2016.02.026.</li> </ol>   |

**Slow Medicine ETS**, an Italian Third Sector organization of health professionals, patients and citizens promoting a Measured, Respectful and Equitable Medicine, launched the campaign "**Doing more does not mean doing better- Choosing Wisely Italy**" in Italy at the end of 2012, similar to Choosing Wisely in the USA. The campaign aims to help physicians, other health professionals, patients and citizens engage in conversations about tests, treatments and procedures at risk of inappropriateness in Italy, for informed and shared choices. The campaign is part of the Choosing Wisely International movement. Partners of the campaign are the National Federation of Medical Doctors' and Dentists' Orders (FNOMCeO), that of Registered Nurses' Orders (FNOPI), the Academy of Nursing Sciences (ASI), National Union of Radiologists (SNR), Tuscany regional health agency, PartecipaSalute, Altroconsumo, the Federation for Social Services and Healthcare of Aut. Prov. of Bolzano, Zadig. [www.choosingwiselyitaly.org](http://www.choosingwiselyitaly.org); [www.slowmedicine.it](http://www.slowmedicine.it)

**The National Hospital Cardiologists Association (ANMCO)** is a 5,000 member non-profit medical association of Italian cardiologists working in the National Health Service. Founded in 1963 the ANMCO promotes good clinical practice, prevention and rehabilitation of cardiovascular diseases through organizational proposals, vocational education and training, promotes and conducts clinical studies, and leads the formulation and development of practical guidelines. From 2006 ANMCO is ISO 9001 certificated. <http://www.anmco.it/>