

CURRICULUM VITAE

MARCO METRA, M.D.

I. Personal

Citizenship status	Italian
Birthdate	September 13th, 1957
Birthplace	Parma, Italy
Marital status	Married, 3 children
Mailing address	Cardiology The Department of Medical and Surgical Specialties, Radiological Sciences, and Public Health c/o Cardiologia. Spedali Civili P.zza Spedali Civili 1 25123 Brescia
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II. Current positions

Full Professor in Cardiology at the Department of Medical and Surgical specialties, Radiological sciences and Public Health of the University of Brescia since December 2015

Director of the Institute of Cardiology of the Civil Hospital and University of Brescia since November 2012

Editor-in-Chief of the European Journal of Heart Failure, official journal of the Heart failure Association of the European Society of Cardiology, impact factor, 6.526 (2017) → 15.534 (2020)

Senior consulting Editor of the European Heart Journal, official journal of the European Society of Cardiology, impact factor 29.983

Executive Editor of the Journal of Cardiovascular Medicine, official journal of the Italian Federation of Cardiology, impact factor 2.16

Co-chairman with Prof. Theresa McDonagh of the European Society of Cardiology (ESC) **guidelines for the diagnosis and treatment of heart failure 2021**

Author of more than 900 scientific articles in peer reviewed scientific journals listed in PubMed, in addition to 272 book chapters, invited articles and congress abstracts

H index, calculated by google scholar, 107, calculated by SCOPUS, 99.

Total number of citations, based on google scholar, of 73 163

Ranked n. 61, in the Top Italian Scientists score for biomedical sciences

https://topitalianscientists.org/TIS_HTML/Top_Italian_Scientists_Biomedical_Sciences.htm

Professor of cardiovascular disease for the School of Medicine, the School of detetics of the University of Brescia

Director of the postgraduate school of cardiology of the University of Brescia since 2012

Education

1990 Fellowship in Internal Medicine, University of Parma

1985 Fellowship in Cardiology, University of Parma

1981 Degree in Medicine, University of Parma

III. Training

1985 Research associate, Committee on Clinical Pharmacology, University of Chicago (Director, Prof. Leon I. Goldberg)

1982 – 1985 Fellow, Institute of Cardiology, University of Brescia

1978 – 1981 Internship, Institute of Cardiology, University of Parma

IV. Academic Appointments

Since 1 Dec 2015 Full professor of Cardiology; University of Brescia

1 Nov 2001 – 1 Dec 2015 Associate Professor of Cardiology; University of Brescia

June 1986 – October 2001 Researcher, Institute of Cardiology; University of Brescia

V. Hospital Appointments

1 November 2012 to now Head, Cardiology Institute of the Spedali Civili and University of Brescia

2003 to 31 October 2012 Director, Unit for Teaching Activities and Applied Science, Department of Cardiology and Cardiothoracic Surgery, Spedali Civili di Brescia

June 24th – Nov 21st, 2004 Temporary Director of the Cardiology Institute of the Hospital of Brescia.

Since 1986 Staff physician, Institute of Cardiology; University of Brescia

VI. Teaching activities

1990-	Professor of Clinical cardiology; Postgraduate school of cardiology. University of Brescia	
1990-	Professor of Cardiovascular Pathophysiology; Postgraduate school of cardiology. University of Brescia	
2001-	Professor of Cardiology; Faculty of Dentistry. University of Brescia	
2000-	Professor of Cardiology; Faculty of Medicine of the University of Brescia	
1997-	Professor of Cardiac rehabilitation. School of Physical Therapy. University of Brescia	
1999-2000	Professor of Cardiovascular Pathophysiology; Faculty of Medicine of the University of Brescia	
1996-99	1996-99	Professor of angiology; Faculty of Medicine of the University of Brescia

VII. Grants

2010-2014	Project BIOSTAT-CHF funded by the European Community FP7 Program. Chairman: Adriaan A. Voors, University of Groningen Medical Center. Principal investigator for Italy and leader for the protocol. 880,000 euros for the years 2010-14	
2014	SMART-ECG project financed by EULO (Ente Universitario Lombardia Orientale), principal investigator for the Cardiology unit, 21.250 euros for the year 2014	
2011-14	MEDIA project funded by the European Community	
1991- 20011	Grants from the Italian National Research Council	
1986	Grant of the Italian Ministry of Education for research in foreign countries.	

VIII. Scientific Societies Memberships

Fellow of the Heart Failure Association of the European Society of Cardiology

Fellow of the European Society of Cardiology

Member of the Heart Failure Society of America

Member of the American Heart Association Council on Circulation

Member of the Italian Society of Cardiology

IX. Commitments in Scientific Societies

2015-now *Ex-officio* member of the Board of the Heart Failure Association (HFA) of the European Society of Cardiology (ESC) as Editor-in-Chief of the European Journal of Heart Failure

2012-14 and
2010-12 Elected counsellor of the Executive Committee of the Italian Society of Cardiology

2008-10 and
2010-12 Member of the Congress Program Committee (CPC) of the European Society of Cardiology

2016 Scientific Reviewer for The European Research Area Network on Cardiovascular Diseases (ERA-CVD) 1st Joint Transnational Call on Heart Failure Research (JTC2016, <http://www.era-cvd.eu/256.php>)

2006-8 President of the Study Group on Heart Failure of the Italian Society of Cardiology

2006-8 President of the Lombardia section of the Italian Society of Cardiology

2006 Scientific reviewer for the Italian Medicines Agency (AIFA: Agenzia Italiana del Farmaco) for active pharmacovigilance studies and investigations on the appropriateness of drug utilization

2004-06 Member of the Committee for Practice Guidelines of the European Society of Cardiology

2004-06 Secretary of the Heart Failure Association of the European Society of Cardiology

2001-2007 Nucleus member of the Heart Failure Association (former Working Group on Heart Failure) of the European Society of Cardiology

1992-2000 Secretary of the Lombardia section of the Italian Society of Cardiology

X. Principal Investigator and Steering Committee services in major multicenter trials

Acronym	Name	Role
DIAMOND	Patiromer for the Management of Hyperkalemia in Subjects Receiving RAASi Medications for the Treatment of Heart Failure, sponsor VIFOR Pharma	Executive Committee member
ANTHEM-HF	Autonomic Neural Regulation Therapy to Enhance Myocardial Function in Heart Failure Study	Member of the Steering Committee
GALACTIC-HF Trial	A Double-blind, Randomized, Placebo-controlled, Multicenter Study to Assess the Efficacy and Safety of Omecamtiv Mecarbil on Mortality and Morbidity in Subjects With Chronic Heart Failure With Reduced Ejection Fraction. Sponsors Amgen, Servier	Executive and publication Committees member
SERENADE	A Long Term Study to Find Out if Macitentan is an Effective and Safe Treatment for Patients With Heart Failure With Preserved Ejection Fraction and Pulmonary Vascular Disease	Member of the Data Monitoring Committee
PURE-HF	Peripheral Ultrafiltration for the RELief from Congestion in Heart Failure, sponsor Fresenius	Executive Committee member
AFFIRM-AHF	Assessment of Ferric carboxymaltose to Improve morbidity and Mortality in iron-deficient patients hospitalised for Acute Heart Failure (), sponsor Vifor Inc.	Executive and Publication Committees member
SOLOIST-WHF	Effect of Sotagliflozin on Cardiovascular Events in Patients With Type 2 Diabetes Post Worsening Heart Failure. Sponsor Lexycom	Executive Committee member
RELAX-AHF-2.	A multicenter, randomized, double-blind, placebo controlled phase III study to evaluate the efficacy, safety and tolerability of Serelaxin when added to standard therapy in acute heart failure patients.	Co-chairman with John Teerlink, University of San Francisco
RELAX-AHF..	The RELAXin in Acute Heart Failure	Co-chairman
ARTS-2.	Mineralocorticoid Receptor Antagonist Tolerability Study.	Chairman of the Data Monitoring Committee, DMC
EDIFY	Effect of ivabradine versus placebo on cardiac function, exercise capacity, and	Member of the

	neuroendocrine activation in patients with Chronic Heart Failure with Preserved left ventricular Ejection Fraction	Steering Committee
COSMIC-HF	Chronic Oral Treatment with Omecamtiv Mecarbil to Increase Contractility in Heart Failure	Member of the Steering Committee
ATOMIC-AHF	Acute Treatment with Omecamtiv Mecarbil to Increase Contractility in Acute Heart Failure	Member of the Steering Committee
CHART-1.	Congestive Heart failure Cardiopoietic Regenerative Therapy trial.	Member of the Steering Committee
ARTS	Mineralocorticoid Receptor Antagonist Tolerability Study	Member of the Data Monitoring Committee, DMC
SIMPLICITY.	Renal Denervation in Patients with Chronic Heart Failure and Renal Impairment	Member of the Steering Committee
ENGAGE AF-TIMI 48.	Effective anticoagulation with factor Xa next Generation in Atrial Fibrillation-Thrombolysis In Myocardial Infarction study 48.	Member of the Steering Committee
ASCEND-HF.	Double-Blind, Placebo-Controlled, Multicenter Acute Study of Clinical Effectiveness of Nesiritide in Subjects With Decompensated Heart Failure	Member of the Steering Committee, Principal Investigator for Italy
BALANCE.	Lixivaptan for the treatment of acutely decompensated heart failure with hyponatremia	Member of the End Point Committee
REACH-UP.	Placebo-Controlled Randomized Study of KW-3902 for Subjects Hospitalized With Worsening Renal Function and Heart Failure Requiring IV Therapy	Member of the Steering Committee. Principal Investigator for Europe
PROTECT-II.	A Study of the Selective A1 Adenosine Receptor Antagonist KW-3902 for Patients Hospitalized With Acute HF and Volume Overload to Assess Treatment Effect on Congestion and Renal Function	Member of the Executive Committee and Principal Investigator for Europe
SHIFT.	Systolic Heart failure treatment with the If inhibitor ivabradine Trial	Member of the Steering Committee
EVEREST.	Efficacy of Vasopressin Antagonism in Heart	Member of the

	Failure Outcome Study With Tolvaptan.	Clinical Events Committee
VERITAS-2	Multicentre, double blind, randomized parallel group study to assess the efficacy, safety, and tolerability of tezosentan in patients with acute hearth failure	Member of the Steering Committee
My-026 ESSENTIAL	The Studies of Oral Enoximone Therapy in Advanced Heart Chronic Heart Failure.	Chairman
MCC-135/GO1	A phase II, double-blind, randomized, placebo-controlled, dose comparative study of the efficacy, tolerability and safety of MCC-135 in subjects with chronic heart failure. NYHA class II/III.	Member of the Steering Committee.
COMET - MF 4455	Carvedilol or Metoprolol European Trial	Member of the Steering Committee
Carvedilol in heart failure	Carvedilol Worldwide Cardiovascular Advisory Board	Member of the Advisory Board
PRIME III	Perspective Randomised study of Ibopamine on Mortality and Efficacy.III	Member of the Steering Committee

XI. Editorial Activities

Editor-in Chief of the European Journal of Heart Failure for the years 2015-2018

Journal	Impact factor	Role
European Journal of Heart Failure	15.534	Editor-in-Chief since 2015. Formerly, Editorial board member,
European Heart Journal	29.983	Senior consulting Editor
Journal of Cardiovascular Medicine	2.16	Executive Editor

Guest Editor activity

Heart Failure Reviews (impact factor in 2009, 5.865) Number 4, December 2009: Special issue on inotropic agents and vasodilators in acute decompensated heart failure. From treatment of hemodynamic derangement to clinical outcomes. Guest Editors Marco Metra and Dirk L. Brutsaert.

Heart Failure Reviews (impact factor in 2009, 5.865) scheduled in late 2011: Special issue on Cardio-renal syndrome. Guest Editors Marco Metra and Adriaan A. Voors.

European Journal of Heart Failure 2008 February; Highlights on acute heart failure. 10(2): 164-214.

Reviewer activities

Journal
The New England Journal of Medicine
The Lancet
JAMA
Journal of the American College of Cardiology (JACC)
Circulation
European Heart Journal
JACC: Heart failure
Heart
Circulation Heart Failure
European Journal of Heart Failure
International Journal of Cardiology
American Heart Journal
Clinical Research in Cardiology
American Journal of Cardiology
Journal of Cardiac Failure (JCF)
Cardiovascular Drugs and Therapy
Journal of Cardiovascular Medicine

XII. Scientific Activities

Main research areas Heart failure

Scientific publications

- PubMed referenced scientific articles n. 906
- Chapters in books and scientific proceedings n. 229
- Data from https://scholar.google.com/citations?user=Iq_i5JgAAAAJ&hl=en and <https://www-scopus-com.proxy.unibs.it/results/authorNamesList.uri?st1=Metra&st2=Marco&origin=searchauthorlookup>

Source	Google scholar	SCOPUS
Number of articles	1 453	875
Number citations:	72 282	48 114
Indice H:	113	98
Top Italian Scientist ranking	n. 61 for biomedical sciences	

SELECTION OF SCIENTIFIC PUBLICATIONS

1. Bhatt DL, Szarek M, Steg PG, Cannon CP, Leiter LA, McGuire DK, Lewis JB, Riddle MC, Voors AA, **Metra M**, Lund LH, Komajda M, Testani JM, Wilcox CS, Ponikowski P, Lopes RD, Verma S, Lapuerta P, Pitt B; SOLOIST-WHF Trial Investigators. Sotagliflozin in Patients with Diabetes and Recent Worsening Heart Failure. *N Engl J Med*. 2021 Jan 14;384(2):117-128. doi: 10.1056/NEJMoa2030183. Epub 2020 Nov 16. PMID: 33200892.
2. McDonagh TA, **Metra M**, Adamo M, Gardner RS, Baumbach A, Böhm M, Burri H, Butler J, Čelutkienė J, Chioncel O, Cleland JGF, Coats AJS, Crespo-Leiro MG, Farmakis D, Gilard M, Heymans S, Hoes AW, Jaarsma T, Jankowska EA, Lainscak M, Lam CSP, Lyon AR, McMurray JJV, Mebazaa A, Mindham R, Muneretto C, Francesco Piepoli M, Price S, Rosano GMC, Ruschitzka F, Kathrine Skibelund A; ESC Scientific Document Group. 2021 ESC Guidelines for the diagnosis and treatment of acute and chronic heart failure. *Eur Heart J*. 2021 Sep 21;42(36):3599-3726. doi: 10.1093/eurheartj/ehab368. Erratum in: *Eur Heart J*. 2021 Oct 14;: PMID: 34447992.
3. Teerlink JR, Diaz R, Felker GM, McMurray JJV, **Metra M**, Solomon SD, Adams KF, Anand I, Arias-Mendoza A, Biering-Sørensen T, Böhm M, Bonderman D, Cleland JGF, Corbalan R, Crespo-Leiro MG, Dahlström U, Echeverria LE, Fang JC, Filippatos G, Fonseca C, Goncalvesova E, Goudev AR, Howlett JG, Lanfear DE, Li J, Lund M, Macdonald P, Mareev V, Momomura SI, O'Meara E, Parkhomenko A, Ponikowski P, Ramires FJA, Serpytis P, Sliwa K, Spinar J, Suter TM, Tomcsanyi J, Vandekerckhove H, Vinereanu D, Voors AA, Yilmaz MB, Zannad F, Sharpsten L, Legg JC, Varin C, Honarpour N, Abbasi SA, Malik FI, Kurtz CE; GALACTIC-HF Investigators. Cardiac Myosin Activation with Omecamtiv Mecarbil in Systolic Heart Failure. *N Engl J Med*. 2021 Jan 14;384(2):105-116. doi: 10.1056/NEJMoa2025797. Epub 2020 Nov 13. PMID: 33185990.
4. Ponikowski P, Kirwan BA, Anker SD, McDonagh T, Dorobantu M, Drozd J, Fabien V, Filippatos G, Göhring UM, Keren A, Khintibidze I, Kragten H, Martinez FA, **Metra M**, Milicic D, Nicolau JC, Ohlsson M, Parkhomenko A, Pascual-Figal DA, Ruschitzka F, Sim D, Skouri H, van der Meer P, Lewis BS, Comin-Colet J, von Haehling S, Cohen-Solal A, Danchin N, Doehner W, Dargie HJ, Motro M, Butler J, Friede T, Jensen KH, Pocock S, Jankowska EA; AFFIRM-AHF investigators. Ferric carboxymaltose for iron deficiency at discharge after acute heart failure: a multicentre, double-blind, randomised, controlled trial. *Lancet*. 2020 Dec 12;396(10266):1895-1904. doi: 10.1016/S0140-6736(20)32339-4. Epub 2020 Nov 13. Erratum in: *Lancet*. 2021 Nov 27;398(10315):1964. PMID: 33197395.
5. Inciardi RM, Adamo M, Lupi L, Cani DS, Di Pasquale M, Tomasoni D, Italia L, Zaccone G, Tedino C, Fabbriatore D, Curnis A, Faggiano P, Gorga E, Lombardi CM, Milesi G, Vizzardi E, Volpini M, Nodari S, Specchia C, Maroldi R, Bezzi M, **Metra M**. Characteristics and outcomes of patients hospitalized for COVID-19 and cardiac disease in Northern Italy. *Eur Heart J*. 2020 May 14;41(19):1821-1829. doi: 10.1093/eurheartj/ehaa388. Erratum in: *Eur Heart J*. 2020 Dec 21;41(48):4591. PMID: 32383763; PMCID: PMC7239204.

6. **Metra M**, Teerlink JR, Cotter G, et al. Effects of Serelaxin in Patients with Acute Heart Failure. *N Engl J Med*. 2019;381(8):716-726. doi:10.1056/NEJMoa1801291
7. Metra M, Teerlink JR. Heart failure. *Lancet*. 2017;390(10106):1981-1995. doi:10.1016/S0140-6736(17)31071-1
8. O'Connor CM, Starling RC, Hernandez AF, Armstrong PW, Dickstein K, Hasselblad V, Heizer GM, Komajda M, Massie BM, McMurray JJ, Nieminen MS, Reist CJ, Rouleau JL, Swedberg K, Adams KF Jr, Anker SD, Atar D, Battler A, Botero R, Bohidar NR, Butler J, Clausell N, Corbalán R, Costanzo MR, Dahlstrom U, Deckelbaum LI, Diaz R, Dunlap ME, Ezekowitz JA, Feldman D, Felker GM, Fonarow GC, Gennevois D, Gottlieb SS, Hill JA, Hollander JE, Howlett JG, Hudson MP, Kociol RD, Krum H, Lucevicius A, Levy WC, Méndez GF, **Metra M**, Mittal S, Oh BH, Pereira NL, Ponikowski P, Wilson WH, Tanomsup S, Teerlink JR, Triposkiadis F, Troughton RW, Voors AA, Whellan DJ, Zannad F, Califf RM. Effect of nesiritide in patients with acute decompensated heart failure. *N Engl J Med*. 2011 Jul 7;365(1):32-43.
9. Teerlink JR, Cotter G, Davison BA, Felker GM, Filippatos G, Greenberg BH, Ponikowski P, Unemori E, Voors AA, Adams KF Jr, Dorobantu MI, Grinfeld LR, Jondeau G, Marmor A, Masip J, Pang PS, Werdan K, Teichman SL, Trapani A, Bush CA, Saini R, Schumacher C, Severin TM, **Metra M**; for the RELAXin in Acute Heart Failure (RELAX-AHF) Investigators. Serelaxin, recombinant human relaxin-2, for treatment of acute heart failure (RELAX-AHF): a randomised, placebo-controlled trial. *Lancet*. 2013 Jan 5;381(9860):29-39. doi: 10.1016/S0140-6736(12)61855-8. Epub 2012 Nov 7.
10. Massie BM, O'Connor CM, **Metra M**, Ponikowski P, Teerlink JR, Cotter G, Weatherley BD, Cleland JG, Givertz MM, Voors A, DeLucca P, Mansoor GA, Salerno CM, Bloomfield DM, Dittrich HC; PROTECT Investigators and Committees. Rolofylline, an adenosine A1-receptor antagonist, in acute heart failure. *N Engl J Med*. 2010;363:1419-28.
11. Teerlink JR, **Metra M**, Felker GM, Ponikowski P, Voors AA, Weatherley BD, Marmor A, Katz A, Grzybowski J, Unemori E, Teichman SL, Cotter G. Relaxin for the treatment of patients with acute heart failure (Pre-RELAX-AHF): a multicentre, randomised, placebo-controlled, parallel-group, dose-finding phase IIb study. *Lancet*. 2009; 373:1429-39.
12. Poole-Wilson PA, Swedberg K, Cleland JG, Di Lenarda A, Hanrath P, Komajda M, Lubsen J, Lutiger B, **Metra M**, Remme WJ, Torp-Pedersen C, Scherhag A, Skene A; Carvedilol Or Metoprolol European Trial Investigators. Comparison of carvedilol and metoprolol on clinical outcomes in patients with chronic heart failure in the Carvedilol Or Metoprolol European Trial (COMET) randomised controlled trial. *Lancet*. 2003;362:7-13.
13. McMurray JJ, Teerlink JR, Cotter G, Bourge RC, Cleland JG, Jondeau G, Krum H, **Metra M**, O'Connor CM, Parker JD, Torre-Amione G, van Veldhuisen DJ, Lewsey J, Frey A, Rainisio M, Kobrin I; VERITAS Investigators. Effects of tezosentan on symptoms and clinical outcomes in patients with acute heart failure: the VERITAS randomized controlled trials. *JAMA*. 2007; 298:2009-19.

14. **Metra M**, Giubbini R, Nodari S, Boldi E, Modena MG, Dei Cas L. Differential effects of β -blockers in patients with heart failure. A prospective, double-blind comparison of the long-term effects of metoprolol versus carvedilol. *Circulation* 2000; 102: 546-551.
15. **Metra M**, Cotter G, Davison BA, Felker GM, Filippatos G, Greenberg BH, Ponikowski P, Unemori E, Voors AA, Adams KF Jr, Dorobantu MI, Grinfeld L, Jondeau G, Marmor A, Masip J, Pang PS, Werdan K, Prescott MF, Edwards C, Teichman SL, Trapani A, Bush CA, Saini R, Schumacher C, Severin T, Teerlink JR; RELAX-AHF Investigators. Effect of serelaxin on cardiac, renal, and hepatic biomarkers in the Relaxin in Acute Heart Failure (RELAX-AHF) development program: correlation with outcomes. *J Am Coll Cardiol*. 2013 Jan 15;61(2):196-206. doi:10.1016/j.jacc.2012.11.005. PubMed PMID: 23273292.
16. **Metra M**, Faggiano P, D'Aloia A, Nodari S, Gualeni A, Raccagni D, Dei Cas L. Use of cardiopulmonary exercise testing with hemodynamic monitoring in the prognostic assessment of ambulatory patients with chronic heart failure. *J Am Coll Cardiol*. 1999; 33:943-50.
17. **Metra M**, Eichhorn E, Abraham WT, Linseman J, Böhm M, Corbalan R, Demets D, De Marco T, Elkayam U, Gerber M, Komajda M, Liu P, Mareev V, Perrone SV, Poole-Wilson P, Roecker E, Stewart J, Swedberg K, Tendera M, Wiens B, Bristow MR; for the ESSENTIAL Investigators. Effects of low-dose oral enoximone administration on mortality, morbidity, and exercise capacity in patients with advanced heart failure: the randomized, double-blind, placebo-controlled, parallel group ESSENTIAL trials. *Eur Heart J*. 2009; 30:3015-26.
18. **Metra M**, Ponikowski P, Cotter G, Davison BA, Felker GM, Filippatos G, Greenberg BH, Hua TA, Severin T, Unemori E, Voors AA, Teerlink JR. Effects of serelaxin in subgroups of patients with acute heart failure: results from RELAX-AHF. *Eur Heart J*. 2013 Sep 2. [Epub ahead of print] PubMed PMID: 23999454.
19. **Metra M**, O'Connor CM, Davison BA, Cleland JG, Ponikowski P, Teerlink JR, Voors AA, Givertz MM, Mansoor GA, Bloomfield DM, Jia G, Delucca P, Massie B, Dittrich H, Cotter G. Early dyspnoea relief in acute heart failure: prevalence, association with mortality, and effect of rolofylline in the PROTECT Study. *Eur Heart J*. 2011 Jun; 32(12):1519-34.
20. **Metra M**, Torp-Pedersen C, Swedberg K, Cleland JG, Di Lenarda A, Komajda M, Remme WJ, Lutiger B, Scherhag A, Lukas MA, Charlesworth A, Poole-Wilson PA. Influence of heart rate, blood pressure, and beta-blocker dose on outcome and the differences in outcome between carvedilol and metoprolol tartrate in patients with chronic heart failure: results from the COMET trial. *Eur Heart J*. 2005;26:2259-68.
21. **Metra M**, Nodari S, D'Aloia A, Muneretto C, Robertson AD, Bristow MR, Dei Cas L. Beta-blocker therapy influences the hemodynamic response to inotropic agents in patients with heart failure: a randomized comparison of dobutamine and enoximone before and after chronic treatment with metoprolol or carvedilol. *J Am Coll Cardiol*. 2002;40:1248-58.
22. **Metra M**, Nardi M, Giubbini R, Dei Cas L. Effects of short- and long-term carvedilol administration on rest and exercise hemodynamic variables, exercise capacity and clinical conditions in patients with idiopathic dilated cardiomyopathy. *J Am Coll Cardiol*. 1994; 24:1678-87.

23. Crespo-Leiro MG, **Metra M**, Lund LH, et al. Advanced heart failure: a position statement of the Heart Failure Association of the European Society of Cardiology. *Eur J Heart Fail.* 2018;20(11):1505-1535. doi:10.1002/ejhf.1236

I authorize the use of my personal data according to D.Lgs. n° 196/2003

Marco Metra, MD

Brescia, 21 April 2022

A handwritten signature in black ink, appearing to read 'M. Metra', is written below the printed name.