

BraveHeart4ForeignWorkers



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Challenge

The American College of Cardiology (ACC) and American Heart Association (AHA) guidelines recommend inpatient coronary angiogram (cath) of < 72 hours for patients with non ST-elevation myocardial infarction (NSTEMI) not meeting high-risk criteria requiring immediate or early cath. Duration to cath confers long-term mortality and survival implications. Recent studies show earlier time to cath in NSTEMI results in better outcomes of all-cause death, nonfatal recurrent myocardial infarction, hospitalisation admission for heart failure or refractory myocardial ischemia, compared to delayed time to cath.

A significant proportion of foreign workers with NSTEMI experience a long mean time to coronary angiogram (cath) > 72 hours, which has been linked to back-office delays in completing the 'Financial Counselling' process. Pre-QIP data collection from the National University Heart Centre Singapore (NUHCS) Acute Myocardial Infarction (AMI) registry database displays that 28% of foreign workers currently undergo 'mean time to cath < 72 hour'.

Aims

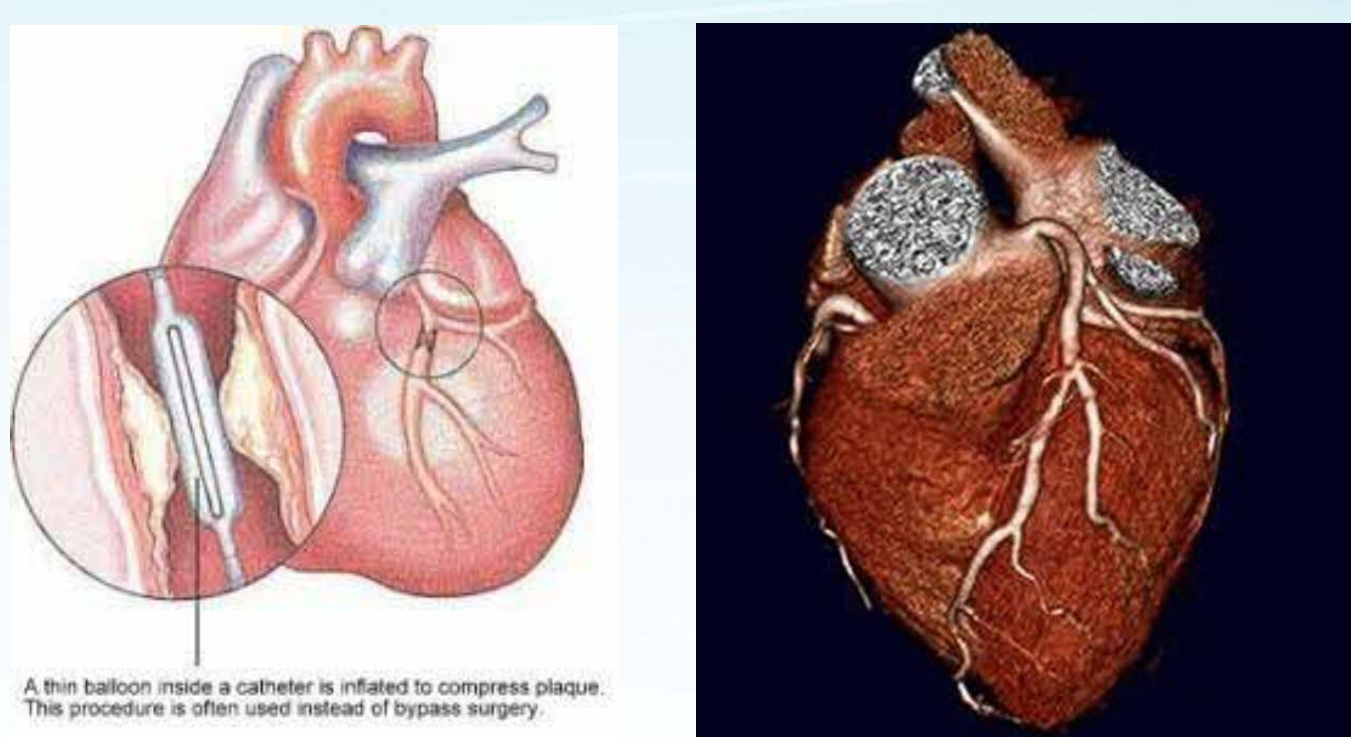
increase the proportion of foreign workers with NSTEMI receiving 'time to cath < 72 hours' by 50% over 6 months

Intervention

A BraveHeart4ForeignWorkers Bundle comprising of an 1. **Epic Smartphrase** and 2. **e-Bundle** was created to overcome the identified backend delay.

1. Epic Smartphrase (Part A)

- I. Cardiology junior doctors have been briefed by the project team leader (and junior doctor representative) at their posting orientation to activate the Epic Smartphrase when a foreign worker meets inclusion criteria is admitted to facilitate swift completion of financial counselling is physically completed and electronically documented
- II. Cardiology junior doctors will update the relevant work employer before the end of working-day (weekdays 530pm, weekends 1130am) (If unable to do so, reason to be documented into Epic)



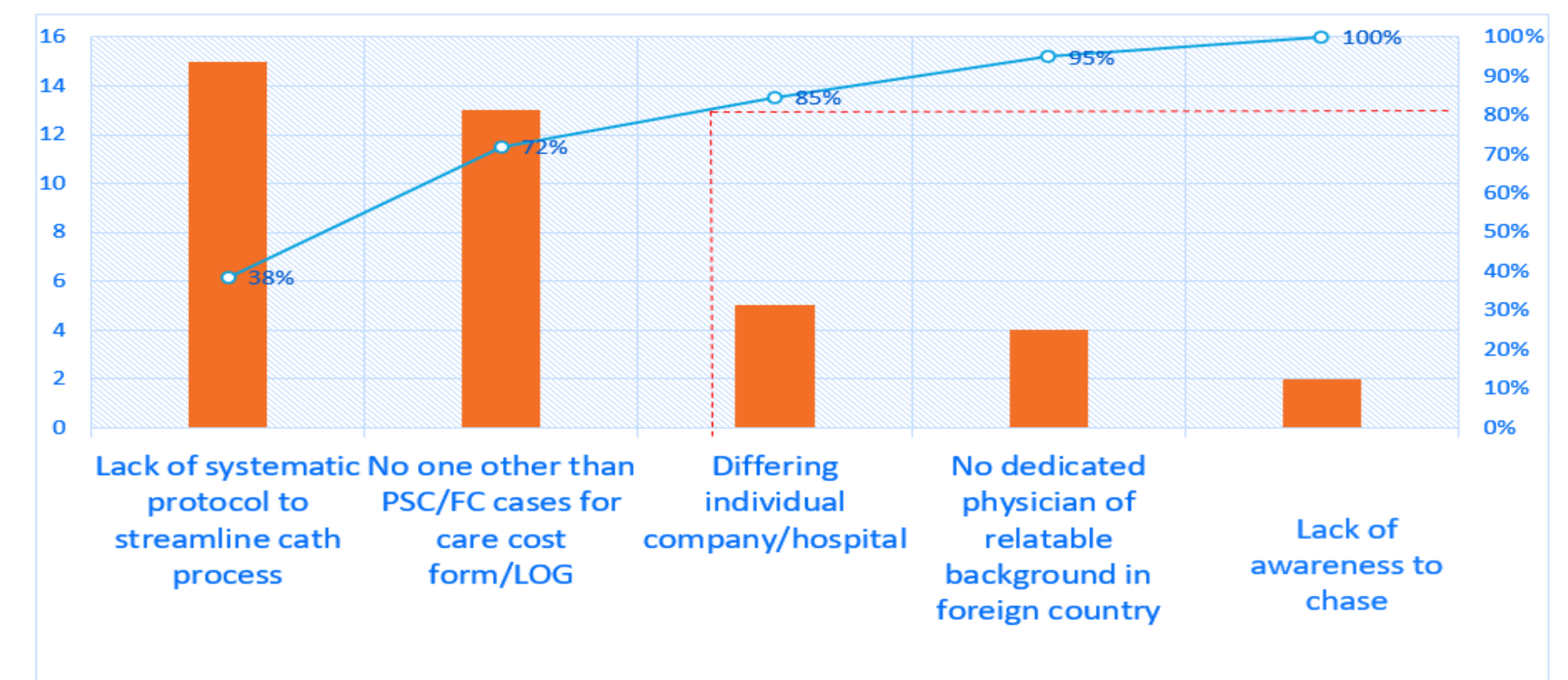
2. e-bundle (Part B)

- I. Patient Service Centre (PSC) will be informed by nursing coordinator and/or ward patient service associate (PSA) to kickstart the financial counselling process, after relevant work employer has been updated by the relevant cardiology doctor
- II. Financial counsellors will ring the employer to counsel on cost and dispatch the BraveHeart4ForeignWorkers e-bundle before the end of each working day to the patient's company, and reinforce for the bundle to be completed, signed and returned back to the relevant PSC email within a target of 24 hours
- III. Once BraveHeart e-bundle is returned and received back to PSC and PSA, patient is able to undergo cath procedure
- IV. This is to facilitate mean time to cath < 72 hours for foreign worker patients with NSTEMI.

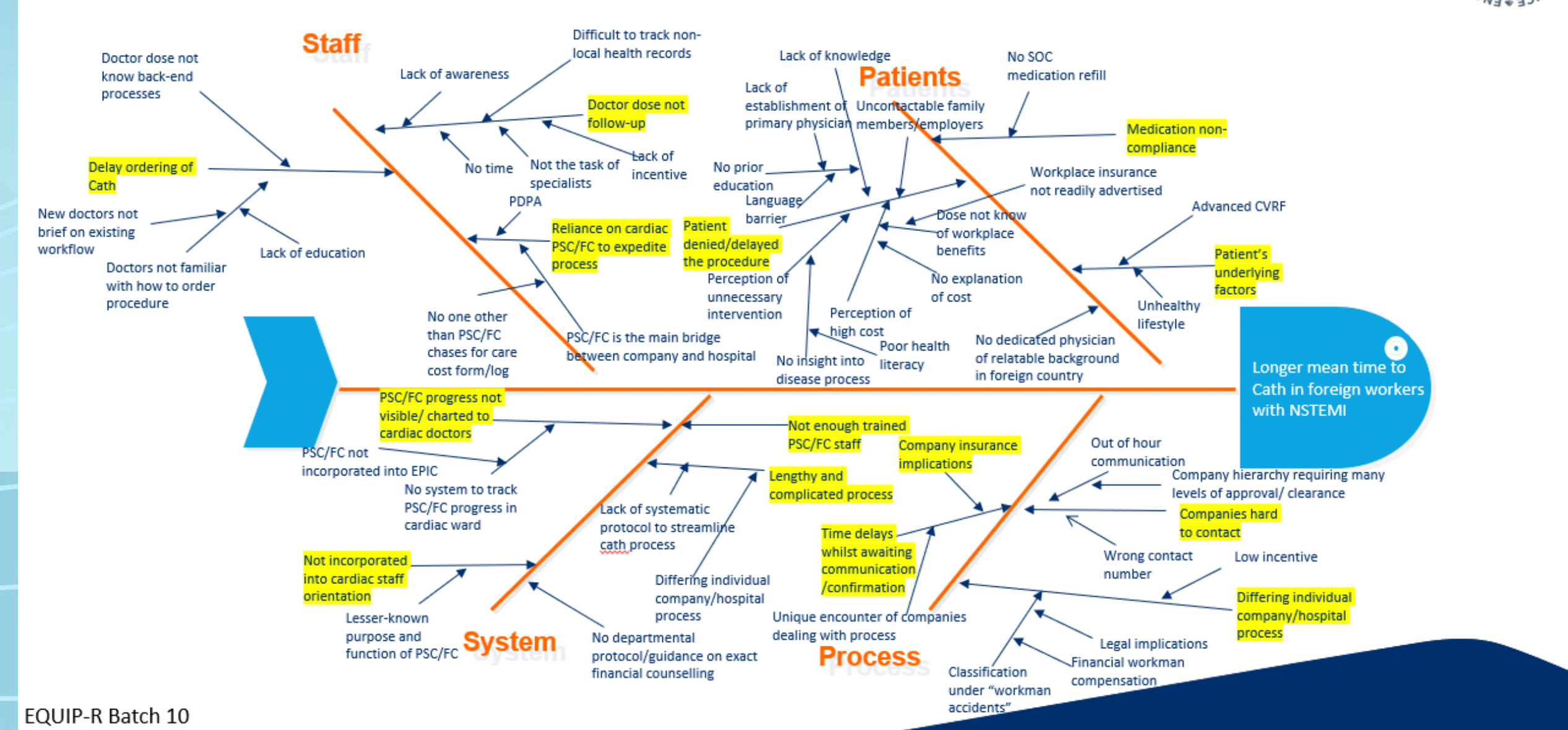
A member of the NUHS

Root Cause Analyses

Diagnosis Phase: Pareto Chart



Diagnosis: Cause and Effect Diagram



Outcome

- **Pre-implementation data:** 28% of foreign workers receive 'mean time to cath < 72 hours'
- **Post-implementation data:** 69% of foreign workers receive 'mean time to cath < 72 hours'

No	Tasks	Start date	End date	Nov-23	Nov-23	Dec-23	Dec-23	Jan-24	Jan-24	Feb-24	Feb-24	Mar-24	Mar-24
1	Data collection	20/11/2023	30/06/2024										
2	Stakeholders building	20/11/2023	30/06/2024										
3	Creation of bundle	10/12/2023	30/06/2024										
4	Implementation of bundle	15/01/2024	30/06/2024										
5	Data collection	15/01/2024	30/06/2024										
6	Feedback session	01/02/2024	30/06/2024										

ROOT CAUSE	INTERVENTION
Lack of systematic protocol to streamline cath process	BraveHeart4ForeignWorker SmartPhrase + E-pack
No dedicated staff other than backend Patient Service Centre (PSC) Financial Counsellors (FC) chases for care cost form (CCF) and letter of guarantee (LOG) in context of differing individual company protocols	Unifying efforts of Financial Centre PSC, Ward PSA, Cardiac Nurses, and Cardiac Doctors to track progress on measurable timeline
Poor health literacy	Patient information leaflet given out to educate patient on their health condition, risks, management, and prevention tactics.
Lack of awareness on part of junior doctors to chase	Increasing awareness on departmental guidelines, protocols and orientation to new MOs

Reference

2014 AHA/ACC Guideline for the Management of Patients With Non-ST-Elevation Acute Coronary Syndromes: Executive Summary. Report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines. Braunholtz A, Amsterdam, Nanette K. Wenger, Ralph G. Brindis, Donald E. Casey Jr, Theodore G. Ganiats, David R. Holmes Jr, Allan S. Jaffe, Hani Jneid, Rosemary F. Kelly, Michael C. Kontos, Glenn N. Levine, Philip R. Liebson, Debabrata Mukherjee, Eric D. Peterson, Marc S. Sabatine, Richard W. Smalling and Susan J. Zieman Writing Committee Members; Lawton JS, Tamis-Holland JE, Bangalore S, Bates ER, Beckie TM, Bischoff JM, Bittl JA, Cohen MG, DiMaio JM, Don CW, Frenes SE, Gaudio MF, Goldberger ZD, Grant MC, Jaswal JB, Kurlansky PA, Mehran R, Metzkes TS Jr, Nwacheta LC, Rao SV, Selke FW, Sharma G, Yong CM, Zwischenberger BA. 2021 ACC/AHA/SCAI Guideline for Coronary Artery Revascularization: Executive Summary: A Report of the American College of Cardiology/American Heart Association Joint Committee on Clinical Practice Guidelines. J Am Coll Cardiol. 2022 Jan 18;79(2):197-215. doi: 10.1016/j.jacc.2021.09.005. Epub 2021 Dec 9. Erratum in: J Am Coll Cardiol. 2022 Apr 19;79(15):1547. PMID: 34895951. Byrne RA, Rossello X, Coughlan JJ, Barbato E, Berry C, Chieffo A, Claeys MJ, Dan GA, Dweck MR, Galbraith M, Gilard M, Hinterhuber L, Jankowska EA, Juni P, Kimura T, Kunadian V, Leosdottir M, Lorusso R, Pedretti RFE, Rigopoulos AG, Rubini Gimenez M, Thiele H, Vranckx P, Wassmann S, Wenger NK, Ibanez B; ESC Scientific Document Group. 2023 ESC Guidelines for the management of acute coronary syndromes. Eur Heart J. 2023 Oct 12;44(38):3720-3826. doi: 10.1093/eurheartj/ehad191. Erratum in: Eur Heart J. 2024 Feb 22; PMID: 37622654.