

IMPLEMENTATION OF 24/7
PRIMARY PCI IN PUBLIC
HOSPITALS, OUR INITIAL
EXPERIENCE AND HOW IT HAS
IMPACTED THE LIVES OF
MAURITIANS AND HEALTH
SYSTEM

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MBBS/AFS/FESC/FSCAI/FAPSIC

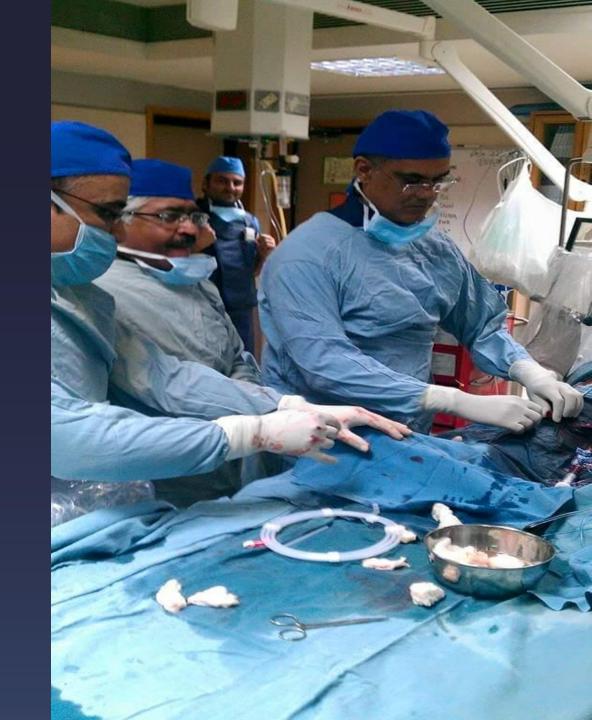
CONSULTANT INTERVENTIONAL CARDIOLOGIST

**HOD CARDIOLOGY** 

DR A.G. JEETOO HOSPITAL

**PORT LOUIS** 

**MAURITIUS** 





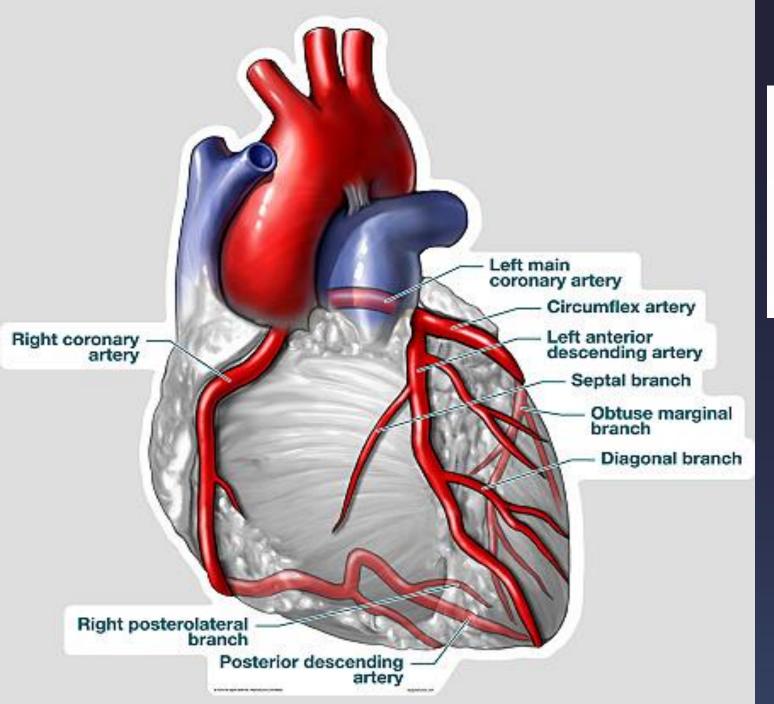




- AHA/ACC
- ESC
- NICE(National Institute for Health & Care Excellence UK)
- SCAI
- LOCAL

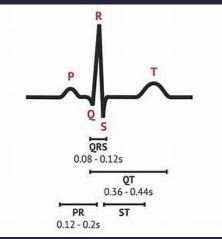
# ALL SAY ONLY ONE THING

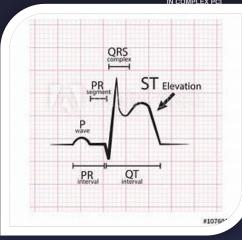




# STEMI





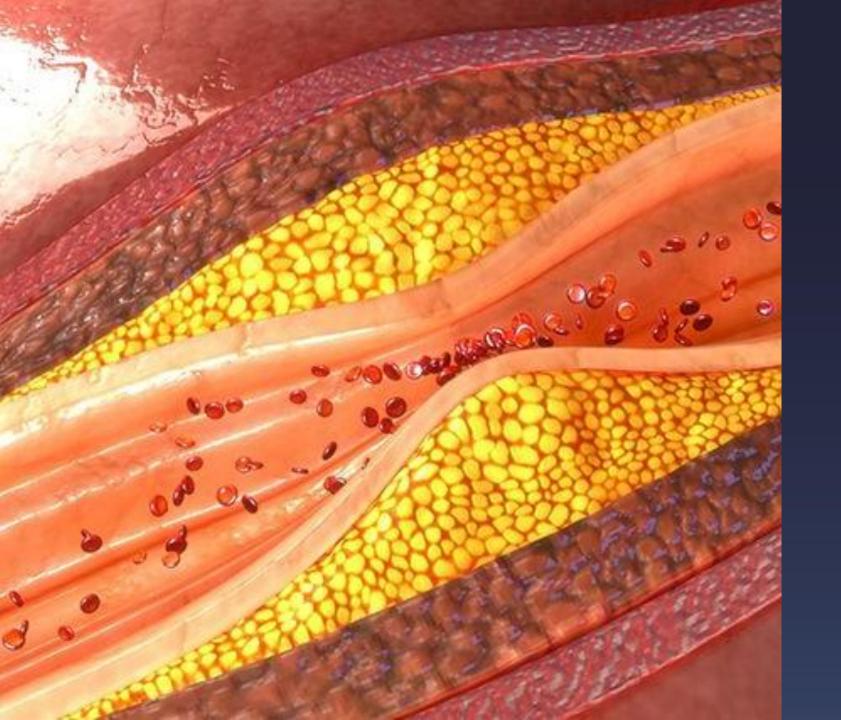


# EARLIER THE CULPRIT VESSEL IS OPENED BETTER IS THE

- IMMEDIATE
- SHORT TERM
- LONG TERM OUTCOMES

MIN IN MI MEANS CARDIAC MUSCLE







# 2 WAYS TO OPEN THE BLOCKED CORONARY ARTERY

- THROMBOLYSIS (MEDICAL)
- PCI (INTERVENTIONAL), ANGIOGRAPHY/PLASTY





- THROMBOLYSIS WAS STILL USED IN MOST OF OUR 5 REGIONAL HOSPITALS
- CAG MAY/NOT BE DONE BEFORE D/C N PT PUT ON WL OF CAG
- DECISION
- PTCA
- CABG
- MED T/T









#### STEMI: early management

NICE National Institute for Health and Care Excellence

Offer a 300-mg loading dose of aspirin as soon as possible and continue aspirin indefinitely unless contraindicated Do not offer routine GPIs or fibrinolytic drugs before arrival at the catheter laboratory if primary PCI planned

Immediately assess eligibility (irrespective of age, ethnicity, sex or level of consciousness) for reperfusion therapy If eligible, offer reperfusion therapy as soon as possible. Otherwise offer medical management

#### Medical management

- Offer ticagrelor with aspirin unless high bleeding risk
- Consider clopidogrel with aspirin, or aspirin alone, for high bleeding risk

Offer cardiology assessment

Assess left ventricular function

#### Reperfusion therapy (primary PCI or fibrinolysis)

#### Angiography with follow-on primary PCI

- Offer if presenting in 12 hours of symptoms and PCI can be delivered in 120 mins
- Consider if presenting more than 12 hours after symptoms and continuing myocardial ischaemia or cardiogenic shock
- Consider radial in preference to femoral access

#### Drug therapy for primary PCI

- Offer prasugrel\* with aspirin if not already taking oral anticoagulant
- Offer clopidogrel with aspirin if taking an oral anticoagulant
- Offer unfractionated heparin with bailout GPI for radial access
- Consider bivalirudin with bailout GPI if femoral access needed

\*For people aged 75 and over, think about whether risk of bleeding with prasugrel outweighs its effectiveness; if so offer ticagrelor or clopidogrel as alternatives

#### Stenting and revascularisation

- If stenting indicated, offer a drug-eluting stent
- Offer complete revascularisation (consider doing this in the index admission) if multivessel coronary artery disease and no cardiogenic shock, but consider culprit only during the index procedure for cardiogenic shock

#### Fibrinolysis

- Offer if presenting in 12 hours of symptoms and PCI not possible in 120 mins
- Give an antithrombin at the same time
- Offer ECG 60-90 mins after fibrinolysis
- Offer ticagrelor with aspirin unless high bleeding risk
- Consider clopidogrel with aspirin, or aspirin alone, for high bleeding risk
- Do not repeat fibrinolysis; offer immediate angiography with follow-on PCI if indicated by ECG
- Seek specialist advice for recurrent myocardial ischaemia and offer angiography with follow-on PCI if appropriate
- Consider angiography during same admission if stable after successful fibrinolysis
- Assess left ventricular function

Cardiac rehabilitation and secondary prevention

This is a summary of the recommendations on early mangement of STEMI from NICE's guideline on acute coronary syndromes. See the guideline at <a href="https://www.nice.org.uk/guidance/NG185">www.nice.org.uk/guidance/NG185</a>

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# NICE GUIDELINES 2020

- 1. FIRST MEDICAL CONTACT WITH PT OF CHEST PAIN (10MIN) ECG AND DIAGNOSIS
- 2. IN NON- ANGIOGRAPHY CAPABLE CENTERS 10 MIN TO THROMBOLYSIS
- 3. IN PCI CAPABLE CENTRES:
- ANGIOPLASTY WITHIN 120 MIN
- WIRE-CROSSING (REPERFUSION) WITHIN 90 MIN





- IF CATH LAB AVAILABLE 1ARY PCI IS THE PREFERRED T/T
  - ARTERY OPENED UNDER VISION (CHANCES OF FAILURE LESS)
  - LESSER RISK THAN WITH THROMBOLYSIS (BLEEDING)
  - IMMEDIATE RELIEF OF SYMPTOMS AS SOON AS ARTERY OPENED
  - ST SEGMENT RESOLVES INSTANTANEOUSLY





## BEFORE 01/09/2020

- CATHLAB OPEN 9–16 HRS
- STK, TNK, THROMBOLYSE, STABILISED
- CAG DEFERRED BEFORE D/C OR WL,
- CATHLAB CLOSED AFTER 4 PM ON WK, SAT NOON, SUN AND PH CLOSED
- FAILED THROMBOLYSIS RESCUE PCI PTS TRANSFERRED TO VH OR DDY(AVAILABILITY OF CATHLAB, PLACE AND MOOD OF DR ON CALL)
- SOME PA ON THE WAY, BEFORE REACHING HOSP OR AFTER CAG
- MIN MEANS MUSCLE IN STEMI, PRECIOUS TIME LOST(TRASPORT/SAMU)













DEDICATED, YOUNG, DYNAMIC BUT INEXPERIENCED TEAM IN PPCI READY TO TAKE THE CHALLENGE TO START PRIMARY PCI 24/7 BASIS

6 CARDIOLOGISTS

1 CIC

2 CONSULTANTS

**3 SPECIALISTS** 









9 YRS, STK, TNK USED, NO 1ARY PCI DONE

01/09/2020 1ARY PCI 9 - 16 HRS

21/06/2021

24/7 1ARY PCI AS A PILOT PROJECT BY MOHW AT DR A.G. JEETOO HOSP





M 40, DM UNCONTROLLED

SMOKER 10/D

**EPIGASTRIC DISCOMFORT LAST NIGHT** 

**CENTRAL CHEST PAIN 1 HR** 

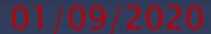
MALAISE/LOC

**UNABLE TO SPEAK** 

**REGAINED CONS** 

**HOSP BY COLLEAGUES** 









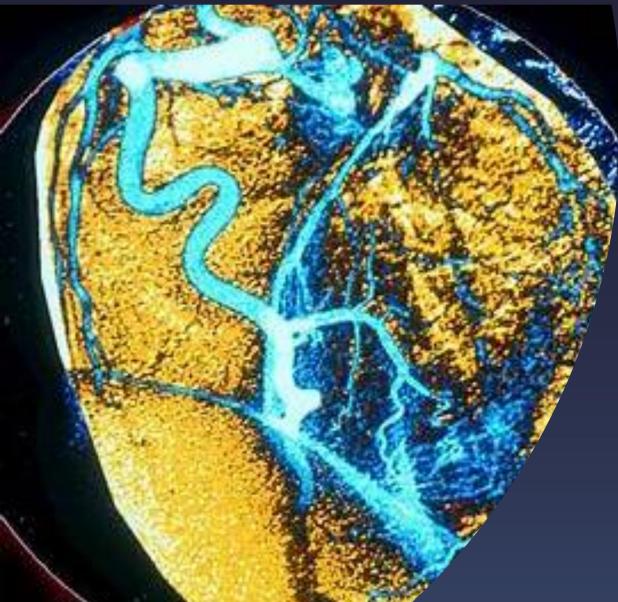










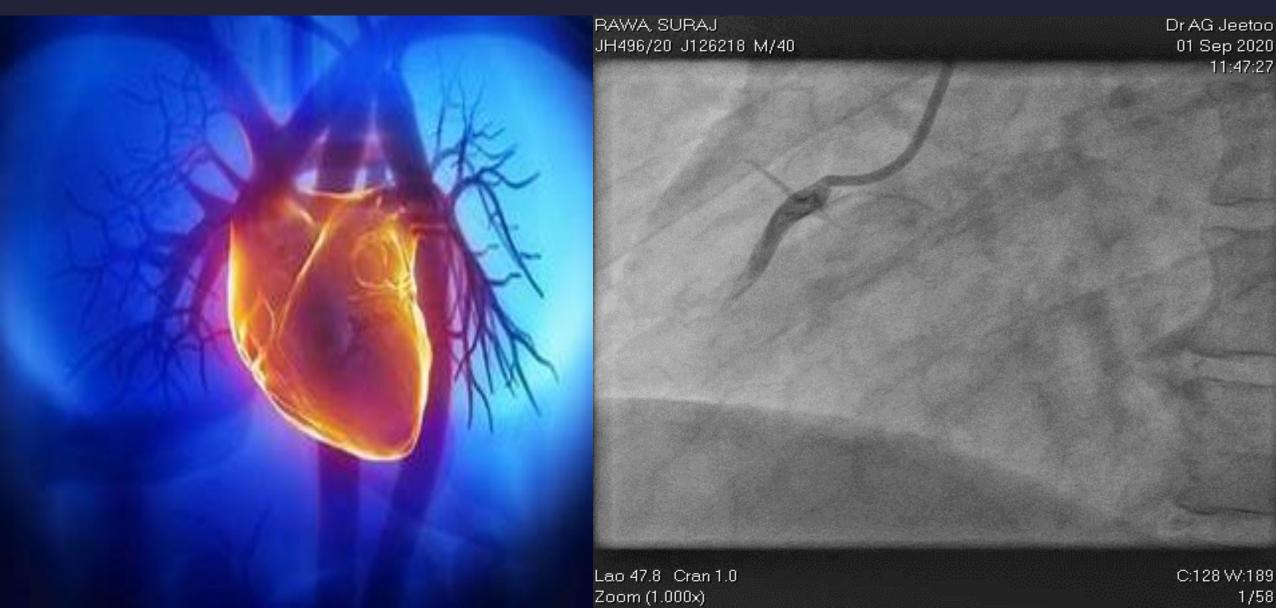


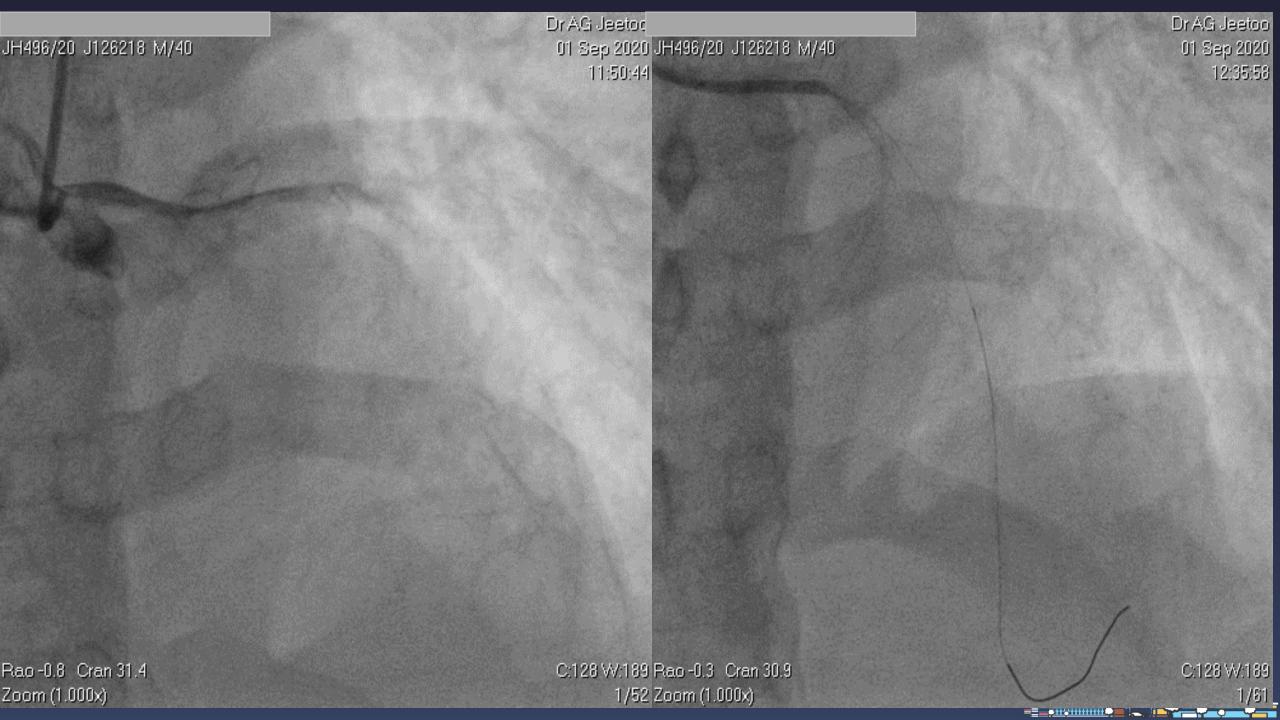
# CAG

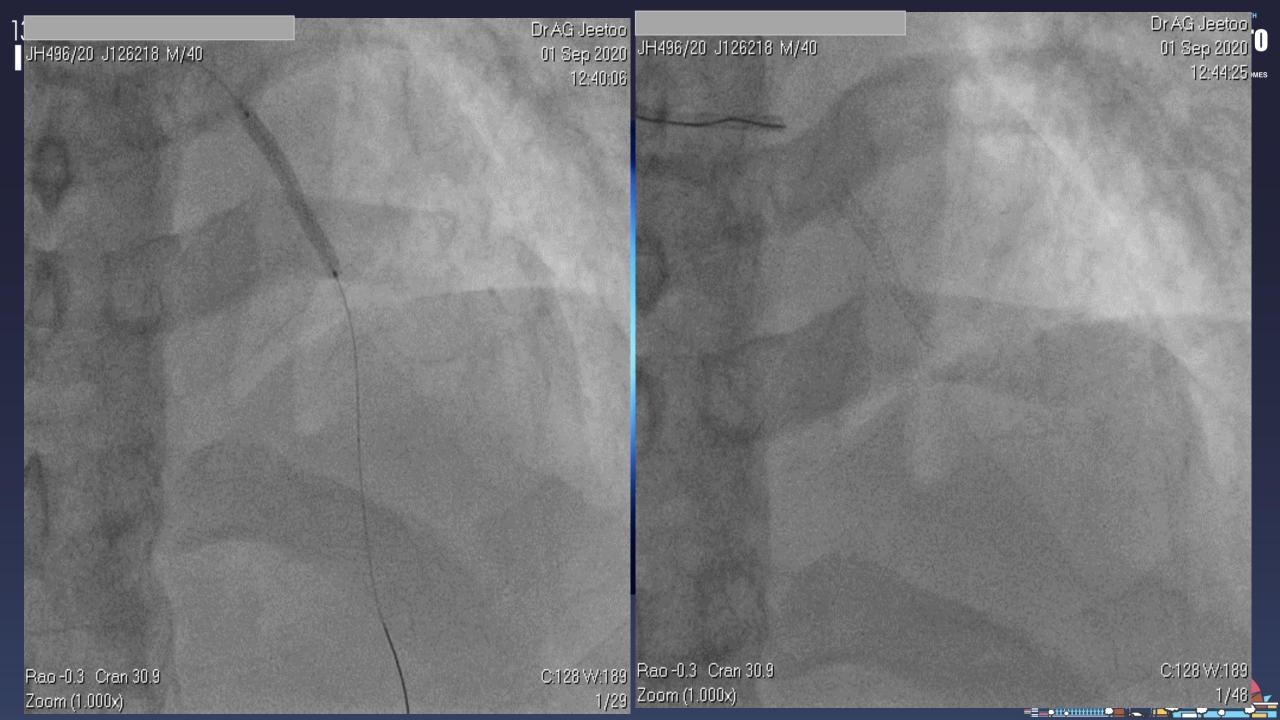








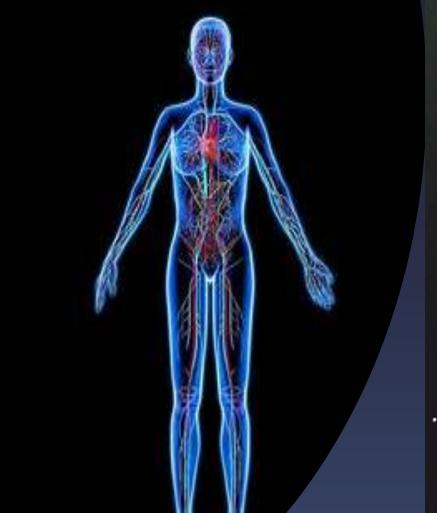






#### **ECHOCARDIOGRAPHY**











# IN COLLABORATION WITH CHIP-CTO JULIA ACHIEVING BEST OUTCOMES IN COMPLEX PCI

#### ECHOCARDIOGRAPHY











- PT WAS D/C 3RD DAY
- REV 2 WKS
- STABLE
- NO CHEST PAIN
- LEADING A NORMAL LIFE TILL NOW





## 24/7 Tary PCI experience

#### **Advantages**

#### Patient

- Artery opened under vision so chances of success high
- Pain and ST elevation subsides as soon as the artery is opened
- No thrombolytic used, risk of bleeding complications..ZERO
- EF of pt preserved, personal, professional and family life preserved, productive in all aspects.
- Days of hospitalisation in most cases 3 instead of 6
- No. of meds reduced so side effects less
- Early return to professional, personal and family life



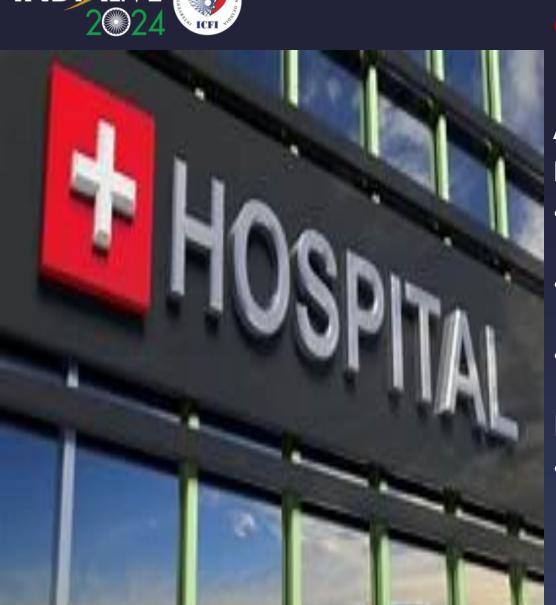












## 24/7 Tary PCI experience



#### Advantages

#### Hospital and system

- Days of hospitalisation half the normal course as compared to thrombolysis so bed turnover doubled
- 1 dose Tenecteplase cost 50,000 Rs, stent costs 7,000
- Thrombolysis leads to bleeding complications
   CVA, GIT bleed (fatal or serious
  handicaps)..avoided
- Heart failure in case of failed thrombolysis adds up to the burden of CVD and heart failure..many meds..expense and side effects..vicious cycle..Rs ??









## 24/7 1ary PCI experience

- MOHW purchases TNK as follows:
- FH 420/YR
- SSRNH 600/YR
- JH 400/YR
- VH 550/YR
- JNH 520/YR
- ROD 12/YR











- TOTAL 420+600+400+550+520+12 = 2502
- 2502 X 50,000 = 125 M Rs/YR ( 2.8 M USD )
- 1 CATHLAB COSTS AROUND 35 M
- 3 LABS/YR CAN BE ADDED TO ANY HOSP JUST BY DOING 1ARY PCI ROUND THE CLOCK IN OUR EXISTING 3 CATH LABS
- Rs SAVED CAN BE USED FOR OTHER DEVELOPMENTS IN HEALTH SECTOR





### **Implementation**

- Acceptance
- Preparation of team and their approval
- Aneasthetists
- Radiographers
- Place to rest, mess, payment issues, etc..
- Multiple meetings at the MOHW
- Settled and program started on 21<sup>st</sup> June 2021





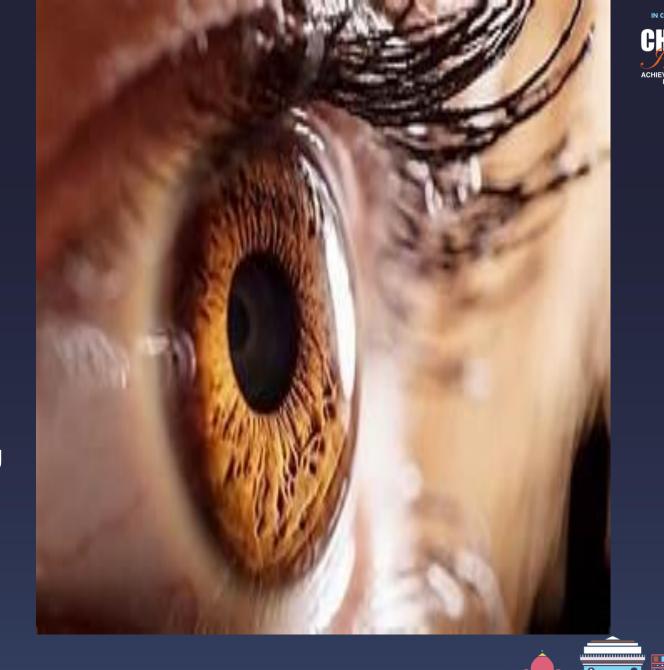




### 24/7 1 ary PCI experience

#### Vision

- Every pt presenting with STEMI benefit with 1 ary PCI 24/7
- 1 ary PCI be extended to all 3 existing centres and get 1 more at JNH, 1 at FH
- Every citizen has the right to get the best t/t in case of STEMI.... lary PCI.







## 24/7 1 ary PC

#### **ACTUAL STATE OF AFFAIRS**

- AFTER THE TREMENDOUS SUCCESS OF INITIAL PILOT PROJECT AT JEETOO HOSPITAL THE MOHW DECIDED TO EXTEND THE PROJECT NATIONWIDE
- SINCE JUNE/JULY OF 2022 OTHER 2 CENTRES OF ISLAND HAVE ALSO STARTED PPCI ON A 24/7 HR BASIS
- PATIENTS FROM ALMOST EACH HOSPITAL ESP THOSE WHERE CATHLAB IS ABSENT ARE BEING TRANSFERRED AS FAR A POSSIBLE TO A PCI CENTRE FOR PPCI..DEPENDING ON CCU BEDS
- A SMALL SPARK THAT STARTED AT JEETOO HOSPITAL HAS TAKEN A NATIONWIDE DIMENSION
- INTRODUCTION OF PPCI IN OUR HEALTH SYSTEM HAS BROUGHT A PARADIGM SHIFT IN THE T/T OF PTS PRESENTING WITH STEMI
- AT PAR WITH THE LATEST MODE OF T/T AS ANY DEVELOPED COUNTRY FOR STEMI PTS





# CAG













06/10/20 22

#### **SINGAPORE**

APSIC (Asian Pacific Society of Interventional Cardiology)
Honoured me with a Fellowship and official Board member
of their society for the paradigm shift in the t/t of STEMI pts in
Mauritius, and I dedicate this to the whole team of
Dr A.G. JEETOO HOSPITAL and all those involved in the success
story





PUBLIC SERVICE EXCELLENCE GOLD AWARD

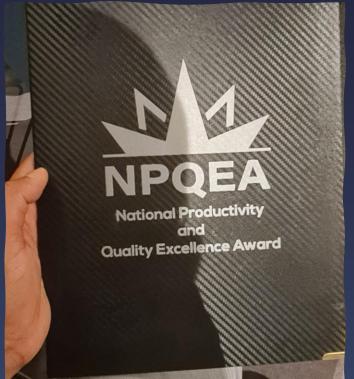




28/07/202 3













EHJ...AFTER THEIR RESEARCH AND CONSULTATION WITH THE PRESIDENT OF CVS OF MAURITIUS AND OTHER SENIOR COLLEAGUES PUBLISHED AN ARTICLE THAT READ..

.. AND I DEDICATE THIS TO MY SENIOR CARDIOLOGIST COLLEAGUES WHO TOILED OVER THE YEARS ON WHICH I ADDED MY SMALL PIECE OF BRICK OF PPCI AND ALL THOSE WHO WERE DIRECTLY OR INDIRECTLY RELATED TO THE PROJECT TO MAKE IT BECOME A REALITY... ..AND IT IS A MOMENT OF PRIDE FOR ALL OF US TO HAVE SUCCESSFULLY ACHIEVED IT.



**Article Navigation** 

JOURNAL ARTICLE

Small country big difference: how one physician's vision became a reality and transformed acute myocardial infarction management in the **Republic of Mauritius** 



**Author Notes** Judith Ozkan

European Heart Journal, Volume 44, Issue 14, 7 April 2023, Pages 1197–1198, https://doi.org/10.1093/eurheartj/ehad





- PPCI IS THE UNDENIABLE T/T OF CHOICE FOR STEMI CASES WORLWIDE ACCREDITED BY ALL REKNOWNED INTERNATIONAL GUIDELINES SINCE YEARS...IT IS THE BEST GIFT THAT CAN EVER BE PROVIDED TO A PT PRESENTING WITH STEMI
- IT HAS ADVANTAGES NOT ONLY FOR THE PATIENTS BUT TO THE HEALTH SYSTEM AND SOCIETY AS A WHOLE
- THERE SHOULD BE A POLITICAL AND PROFESSIONAL WILL TO IMPOSE SUCH DECISIONS IN THE BENEFIT OF ALL AND THE SYSTEM
- MTIUS HAS THE ADVANTAGE OF BEING A SMALL COUNTRY AND ANY CORNER OF IT IS REACHABLE IN LESS THAN 120 MINS AS RECOMMENDED BY ALL INTERNATIONAL GUIDELINES.
- AFTER DOING AROUND 450 CASES OVER 3 YEARS I CAN SAY OUR SUCCESS RATE IS MORE THAN 99 % AND PPCI, THOUGH MORE RISKY, IS EASIER TO DO THAN MANY OTHER INTERVENTIONS AND IS THE ONLY PROCEDURE THAT SAVES LIVES IN IHD PTS..LEARNING CURVE..
- IMPLEMENTATION OF 24/7 PPCI HAS BEEN THE MOST REWARDING PROGRESS IN CARDIOLOGY IN THE PAST 20
  YRS









