

Report on ICMR STEMI Care Project (Varanasi District)

Project Title: 'Evaluation of a health system-based intervention on Change in thrombolysis rate in ST segment elevated myocardial infarction (STEMI) acute coronary syndrome (ACS) across selected districts of the country – A health implementation research project. (ICMR-STEMI-ACT)'

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Date of Start: 01-09-2022

Duration: Three Years



Summary of the proposed research:

- ST segment Elevated Myocardial Infarction (STEMI) is the commonest form of Acute Coronary Syndrome (ACS) in low income countries and is a major cause of morbidity and mortality.
- *Timely initiation* of thrombolysis/ percutaneous intervention (PCI) based reperfusion has been demonstrated to be effective in lowering mortality.
- The reported reperfusion rates in India are around 35% - 50% only even in tertiary care hospitals.
- ICMR's management of acute coronary events has observed a thrombolytic rate of around 22% (unpublished data).

Challenges in optimization of Reperfusion therapy

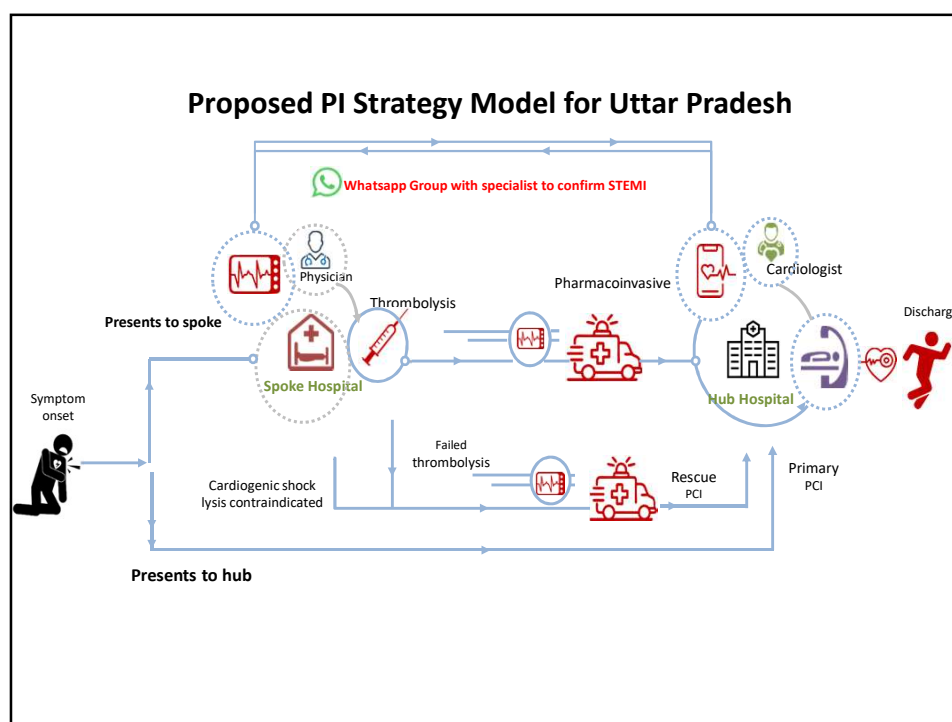
- The ACS enabled hospitals are located in cities in urban areas
- Secondary care Hospitals lacks health care providers with skills, competency to diagnose and thrombolysis
- Majority of population in India lives in Rural areas
- Significant delay due to long traveling time.
- Majority of population is ignorant about the symptoms and importance of reporting early.
- Primary PCI is accessible only in select hospitals and access is limited

Opportunities to optimize reperfusion therapy: Hub and spoke model of STEMI care

- Strengthening secondary care hospitals closer to community (spoke centres)
- Access to teleconsultation services 24*7 to all spoke centres from hub centres.
 - Decrease the ischemic time
 - Increase thrombolysis rates
 - Decrease mortality
- Safe transfer of patients from spoke to hub centre through National Ambulance Services (NAS).

Comparison of Indian registry studies and Western studies.

	CREATE Registry [1]	Kerala ACS Registry [2]	HP ACS Registry [3]	GRACE REGISTRY [4]	European Heart Survey ACS [5]
Total number of patients	20468 at 89 centres	25748 in 125 hospitals	5180 in 33 hospitals	11543	10484
STEMI	60.6%	37%	45.5%	30%	42.3%
Mean age (years)	57.5	60	60.9	64-69	63
Median time from symptoms to hospital	300 Min.	71% reach the hospital less than 360 min. (6hr)	780 Min.	140 Min.	170 Min.
Thrombolysis	41%	58.5%	35.6%	47%	36%
PCI In STEMI	12.9%	8%	2.1%	40%	20%
Mortality in STEMI	8.6%	8.2%	10.8%	8%	7%



HUB AND SPOKE MODEL OF STEMI

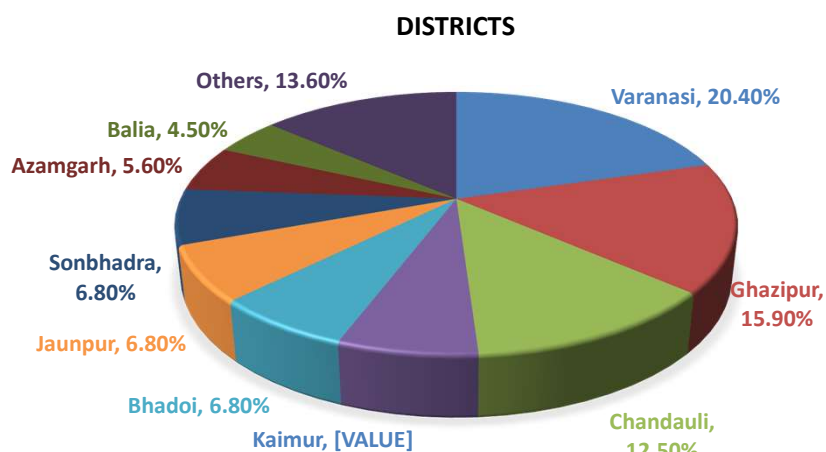
District Implementing year	Total Population	≥18 yr Population	Estimated no. of STEMI/MI/year	Number of Spokes Implementing STEMI program
2022-2023 (DOS 01.09.2022)	4.5 million approx.	2.9 million	9531/year	19

Facility at hub hospital (Medical College)

Number of Cardiologist	MD Physicians	Nurses	ECG Technician	Cath lab (12Hour)	Tie-up with 108 ambulances
7	7	46 Cath Lab-12 CCU-18 Lab-16	4	2	Available

S. No.	Name of facilities (SPOKES, Government Hospitals)	Distance from Medical College
1	PDDU, District Hospital, Varanasi	11.2 KM
2	SSPG, Divisional District Hospital, Kabirchaura	6.0 KM
3	LBS,Ramnagar	3.5 KM
4	CHC Shivpur	14.2 KM
5	CHC Cholaipur	30 KM
6	CHC Arajiline	35 KM
7	SVM Hospital,Bhelupur	3.4 KM
8	CHC HathiBazaar	24 KM
9	CHC Narpatpur	34.3 KM
10	CHC Misirpur	10.5 KM
11	CHC Sarnath	20 KM
12	CHC Chaukaghat	13 KM
13	CHC Puwarikala	5 KM
14	CHC Kashi Vidyapeeth	6 KM
15	CHC Durgakund	3 KM
16	Central Jail	15 KM
17	PHC Badagaon	32 KM
18	Galaxy Hospital	5.5 KM

District Wise Cases from baseline



Baseline data status from Spoke

Name of Spoke Centre	No of patients STEMI + ve cases thrombolysed
PDDU District Hospital	40
SSPG Kabir Chaura District Hospital	34
LBS Ramnagar District Hospital	4
CHC Bhelupur	6
CHC Cholapur	4
CHC Misirpur	0
CHC Narpatur	0
CHC Hathi Bazaar	0
CHC Shivpur	1
Sarnath, CHC	2

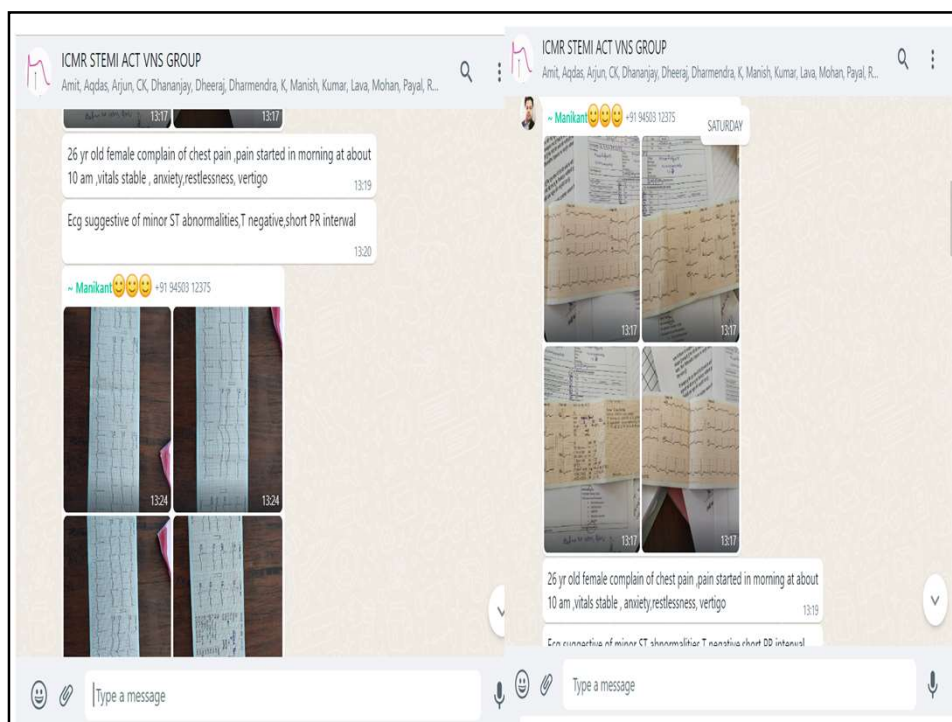
Intervention Phase
ICMR- STEMI ACT Six Monthly Report- Varanasi District
25-12-2023 to 30-06-2024

No. of Chest pain cases	No. of ECGs done	No. of STEMI cases	No. of eligible patients for thrombolysis	No. of thrombolysis done	Number of patients who refused thrombolysis	Status
1800	1800	150	105	100	5	Alive

- **Patient population to be screened:** Patients with chest pain visiting pre-identified hospitals in the various selected districts will be screened based on quick focused history to determine type of chest pain: typical anginal pain, atypical chest pain or non-cardiac pain and will be followed by quick 12 lead ECG recording to rule out or rule in for STEMI ACS patients.

ICMR STEMI WHATS APP group

- We have set up an APP through this project – entered chest pain, ECG and thrombolysis details more than 500 cases (brief patients details and upload ECG).



Summary of training programme-

- Chief Patron was Prof.Sudhir K. Jain, Hon'ble Vice Chancellor, BHU, Varanasi, Patron- Prof. Dr. V.K. Shukla, Hon'ble Rector, BHU, Varanasi.
- Chief Guest - Parthsarathi Sen Sharma, IAS, Hon'ble Principal Secretary- Medical Health, UP Govt.
- Total registrations were 150. State nodal officers, Sr. Advisor IHAT, DGM NCD NHM UP, Cardiologist, MS, 28 CMO from different districts of UP state, 7 CMS from different districts of UP state, 40 MO, 42 Nurses, 6 ECG Technicians , 10 Pharmacist, SRF and DEO were attended the programme.

Mode of Training	Numbers of Participants
Online	200
Onsite	150
Hybrid	300
weekly training programme at Hub	500
Workshop	150
CME	150