THE CHALLENGE

Cardiovascular diseases, including heart attacks and other circulatory diseases, are now the leading cause of death in China.

Severe heart attacks, known as ST-elevation myocardial infarctions (STEMIs), are especially difficult to treat since rapid response is needed to reduce damage to the heart muscle and save lives. Emergency medical services (EMS) and hospitals are often unable to respond fast enough with evidence-based care for patients suffering from STEMIs.

The HeartRescue Global project, including HeartRescue China, was based on the Diffusion of Innovations theory of change. Suzhou served as an early adopter of interventions to improve access, quality of care, and the speed of response for STEMI victims. This demonstrated to other cities in China that improvements in care for STEMI patients are possible.

HeartRescue China conducted interventions to improve heart attack care in three settings, including the community, EMS, and hospitals.

In the community, social media messages, videos, and in-person education events were provided about heart attack symptoms and the need for patients and families to take rapid action to get to a hospital when they happen.

Improved clinical protocols, training of doctors, EMS dispatchers, and other staff, and quality improvement programs were implemented in the EMS and hospitals to improve care once patients are in the healthcare system.

A STEMI patient registry data system provided ongoing feedback to EMS and hospital staff to track progress.

THE GOALS

Improve access, quality of care, and the speed of response in the EMS and hospitals to provide better care for severe heart attacks.

Increase community awareness of the symptoms of heart attack and the need for patients and families to act quickly to contact the EMS when those symptoms happen.

THE CITY: Suzhou, China

POPULATION: **11 million**

People lacking adequate health insurance are estimated to be **25%** of the population

Migrant workers are estimated to be **25%** of the population

People with low education levels are estimated to be **20%** of the population

2015-2020
HeartRescue China
Selected Achievements

906 **Physicians** trained

2,921 **Nurses**, **EMS staff**, and **other non-physicians** trained

973 **STEMI patients treated, tracked, and assessed for quality of care in the patient registry**

For the STEMI quality measures in the registry
Some quality measures showed improvement, e.g.

Percent of patients with time from first medical system contact to reperfusion ≤ 90 minutes increased from **41%** to **86%**

Percent of patients with time from hospital arrival to PCI reperfusion ≤ 60 minutes increased from **10%** to **100%** for patients arriving at the hospital by ambulance

While other quality measures had smaller increases or declines, e.g.

Percent of patients with time from symptom onset to first medical system contact ≤ 60 minutes changed from **22%** to **30%**

Percent of patients with time from symptom onset to first reperfusion ≤ 180 minutes changed from **21%** to **33%**

Percent of patients discharged from the hospital with a statin declined from **88%** to **50%**

31 Media articles about **HeartRescue China**

33 **Stakeholder** meetings with government agencies, participating hospitals, medical societies, and advisory groups

90 **Community Education** events and focus groups

PARTNERS FOR IMPROVING SYSTEMS OF CARE

China Heart House, the operational arm of the China Cardiovascular Society

RTI International, one of the leading non-profit research institutes in the world.

CLINICAL SITES

Suzhou Kowloon Hospital
Suzhou University Affiliated Hospital No. 1
Suzhou University Affiliated Hospital No. 2
Suzhou City Hospital
Xi Hai Hospital

HeartRescue China
Accomplishments

Patient registry implemented to track data on the numbers of STEMI patients and quality measures covering the community, EMS, and hospital settings of care. Ongoing data feedback to hospitals, EMS, and government officials.

Community education through training programs, partnerships with community health centers, social media campaigns, and community events.

New regional EMS response protocols and EMS dispatcher training.

Improved hospital care protocols and processes, including implementation and training on STEMI clinical guidelines**.**

Advised Suzhou and Shanghai government officials on **Good Samaritan regulations** implemented in 2018 to provide legal protection to bystanders assisting people in cardiac emergencies. Now a national law in 2020.

Learnings

Documented gender disparity in STEMI treatment, where women represented only 16% of the total number of patients in the STEMI patient registry. This is a gap for future improvement.

Developing EMS dispatchers' communication skills improves their responses to callers. This training included how to ask callers clear questions and then act quickly to provide ambulance staff with relevant information.

Plan for major data collection and data quality challenges. Additional data quality control and more intensive follow up to fix data problems should be planned for future programs.

Large amounts of time and resources are needed to change community behaviors and medical treatment systems. We were not able to achieve as much improvement in the community and medical system quality measures as we had hoped. Additional types of interventions should be tested in future programs.