ACS Quik Cluster Randomized Stepped Wedge Trial

Sonia S. Anand MD, PhD
Population Health Research Institute,
McMaster University, Canada
ACS Management

• Proven therapies in large randomized trials
• Quik Registry in Kerala and India showed areas where evidence was not consistently applied
• Cluster randomized stepped wedge trial was planned
• Facilitators and Barriers were reviewed and areas which could be changed were attempted to be changed using a toolkit
Context

• Care gaps exist in implementing RCT evidence in CV care
• Excellent RCT evidence in ACS management
• Huffman and colleagues previously demonstrated areas for improvement in ACS care in India based on data from 24,748 participants enrolled in the Kerala ACS Registry (2007-2009).
  • Gaps identified:
    • < 70% use of proven therapies: Statin, ACE etc..
    • Inappropriate use of thrombolytics
• Facilitators and Barriers were reviewed and areas which could be changed were attempted to be changed using a toolkit
What did they do? = Wow!

• Designed an intervention to address care gaps
• Created a toolkit [monthly quality improvement mtgs, standardized orders, patients education materials, training assistance] of areas they could change (i.e. inappropriate use of thrombolysis)
• Cluster randomized trial stepped wedge design
• 63 hospitals (private and public hospitals) in Kerala
• 21,374 participants enrolled
• Everyone started in the control group
• ACS population [age 60 years, 75% men, 66% STEMI, 78% no insurance]
• Primary Outcome: 30 days MACE or major bleeding
• 99% 30 day follow-up
What did we learn?

• In hospital and discharge secondary prevention medications increased modestly

• 18% significant reduction in 30 days MACE unadjusted.

• Overtime the MACE rate in the intervention group increased and then plateaued, and the control event rate decreased – gap btwn groups narrowed

• No reduction in 30 day MACE after adjustment for temporal trends and within hospital clustering.
Interpretation:

• Was this a negative trial or did it show what may be expected based on the degree of change in process outcomes?

• Other cluster randomized ACS trials have been negative

• CPCR-3 is ongoing in CHINA Stepped wedge cluster RCT n=25,000 in 104 hospitals, a 6 point quality improvement intervention powered to detect outcomes

• How should ACS Quik be interpreted?
  - Toolkits don’t work?
  - Observer Bias – Contamination of Control group
  - Temporal trends adjusted away the effect?
  - Costs of some therapies such as direct PCI or thrombolysis represent a barrier that can’t be changed?
  - Low event rates were due to selected patients?
Do we need Endpoint trials in KT?

- Do we need endpoint randomized trials if barriers are identified and processes outcomes and medication use is measured?