High-quality, Clinically Relevant Evidence

Awareness
- Accessible appraisals
- Automatic delivery of news worthy, clinically relevant evidence

Acceptance
- Tort reform
- Interdisciplinary education
- Balanced commercials

Applicable
- Increased pragmatic clinical trials
- Clear description of demographics

Able
- Original research description of evidence use at dissimilar clinical settings

Act On
- PDA or computer order entry prompts

Agree
- Community EBM education
- Anticipate counterarguments

Adhere
- Evidence-based discharge summaries

Competing Influences, Marketing, Authoritarian Doctrine, Contradictory Experience, Poorly Differentiated Health versus Unhealthy Skepticism

Resource Constraints
- Skill Competence

Information Overload, Competing Influences

Hectic ED Environment, Frequent Distractions, Competing Mandates

Uncertain Interpretation, Uncertain Local Demographics, Clinically Significant Differences from Study Population

Optimal Patient Outcomes Based upon Best Evidence
Clinical guidelines

- “are statements that include recommendations intended to optimize patient care”, they are based upon “evidence and an assessment of the benefits and harms of alternative care options”

Clinical pathways

- Are the **translation** of clinical practice guidelines to provide a plan of care suitable for a local health system and its structure.

- They take into account factors such as resource availability and consensus of local subject matter experts.

- Clinical pathways, have been shown to reduce complications, decrease length of stay and reduce hospital costs
Patients with potential ACS

ACS 20%
Non-ACS 80%

<table>
<thead>
<tr>
<th>Time</th>
<th>Low Risk 35%</th>
<th>Intermediate Risk 25%</th>
<th>Highest Risk 20%</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Low Risk</td>
<td>Intermediate Risk</td>
<td>Highest Risk</td>
</tr>
<tr>
<td>2</td>
<td>Low Risk</td>
<td>Intermediate Risk</td>
<td>Highest Risk</td>
</tr>
<tr>
<td>4</td>
<td>Low Risk</td>
<td>Intermediate Risk</td>
<td>Highest Risk</td>
</tr>
<tr>
<td>6</td>
<td>Low Risk</td>
<td>Intermediate Risk</td>
<td>Highest Risk</td>
</tr>
<tr>
<td>8</td>
<td>Low Risk</td>
<td>Intermediate Risk</td>
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<td>10</td>
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<td>Highest Risk</td>
</tr>
<tr>
<td>12+</td>
<td>Low Risk</td>
<td>Intermediate Risk</td>
<td>Highest Risk</td>
</tr>
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</table>
Phases of ICARE-ACS related to specific studies that formed the evidence base for the project:

1. 2007 - 2010: Multi-centre Observational study (ASPECT)
2. 2007 - 2011: Validation study (ADAPT)
3. 2010 - 2012: Single-centre RCT
4. 2011 - 2012: Development and Validation of EDACS score
6. 2014 ongoing: ADP Implementation (ICare-ACS)
INCLUSION

- Adults with serial troponin testing for possible ACS as indicated by a cardiac troponin test performed during initial assessment in the ED with a 2nd test performed within 24 hours of attendance.

PRIMARY OUTCOME

- The proportion of patients discharged home within six hours of ED arrival.
**Stepped wedge study design:** A 6-month control period for each site followed by an intervention phase comprising a 4-month implementation phase and ADP continuance phase. Study End is at the completion of the final implementation phase and follow-up data is collected on the final patients for 30-days.
Mandatory components of clinical pathways

1. A written clinical pathway document in paper or electronic format for assessment of possible ACS in the ED

2. A structured and reproducible processes of ACS risk stratification (e.g. a clinical score/algorithim)

3. Recommended sampling time-points for performing cTn and ECG testing (e.g. on arrival and at another specified time point(s))

4. Guidance about how to combine clinical risk stratification, and ECG and troponin testing with structured patient management (including incorporation of an accelerated diagnostic protocol).
INTERVENTION:
Implement a clinical pathway, incorporating an ADP, for the assessment of patients with possible ACS

• Pathways were required to have four core components based upon the (former) Society of Cardiovascular Patient Care Chest Pain Accreditation tool (cycle IV)

• Adopted by the ACC accreditation services and AHA Mission: Lifeline program.
• Tool is not prescriptive beyond requiring implementation of each core component, but focuses on engaging hospitals in a cross-system, multidisciplinary, all-inclusive improvement process

• The intervention involved integrating core components and adapting existing practice into a clinical pathway

• Exact format of each pathway, and ADP used, were decided locally. Participating sites were presented with evidence regarding published ADPs and chose which ADP they would use.

• ADPs required troponin measurement on arrival and then also either at 1, 2 or 3 hours to determine eligibility for early discharge.
Kotter's 8-Step Change Model

**Step 1: Establishing a Sense of Urgency**
Help others see the need for change and they will be convinced of the importance of acting immediately. Learn More »

**Step 2: Creating the Guiding Coalition**
Assemble a group with enough power to lead the change effort, and encourage the group to work as a team. Learn More »

**Step 3: Developing a Change Vision**
Create a vision to help direct the change effort, and develop strategies for achieving that vision. Learn More »

**Step 4: Communicating the Vision for Buy-in**
Make sure as many as possible understand and accept the vision and the strategy. Learn More »

**Step 5: Empowering Broad-based Action**
Remove obstacles to change, change systems or structures that seriously undermine the vision, and encourage risk-taking and nontraditional ideas, activities, and actions. Learn More »

**Step 6: Generating Short-term Wins**
Plan for achievements that can easily be made visible, follow-through with those achievements and recognize and reward employees who were involved. Learn More »

**Step 7: Never Letting Up**
Use increased credibility to change systems, structures, and policies that don't fit the vision, also hire, promote, and develop employees who can implement the vision, and finally reinvigorate the process with new projects, themes, and change agents. Learn More »

**Step 8: Incorporating Changes into the Culture**
Articulate the connections between the new behaviors and organizational success, and develop the means to ensure leadership development and succession. Learn More »
<table>
<thead>
<tr>
<th>Hospital</th>
<th>Hospital type</th>
<th>Annual ED attendance*</th>
<th>Troponin Assay</th>
<th>Timing for low risk</th>
<th>Thresholds (ng/L)</th>
<th>ADP</th>
<th>Low-risk score</th>
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<tbody>
<tr>
<td>1</td>
<td>Local secondary &amp; regional tertiary care</td>
<td>68,383</td>
<td>Hs-cTnT</td>
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<td>Hs-cTnI</td>
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<td>≥26</td>
<td>EDACS‖</td>
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</table>
# RESULTS

<table>
<thead>
<tr>
<th></th>
<th>Pre</th>
<th>Post</th>
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</thead>
<tbody>
<tr>
<td>n</td>
<td>11,529</td>
<td>19,807</td>
</tr>
<tr>
<td>Female (%)</td>
<td>46.5</td>
<td>45.6</td>
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<tr>
<td>Maori (%)</td>
<td>10.4</td>
<td>10.5</td>
</tr>
<tr>
<td>MACE in 30d (%)</td>
<td>13.6</td>
<td>12.9</td>
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</tbody>
</table>
Overall odds ratio = 2.3 (2.2-2.6); p<0.0001

Forest Plot of the Odds Ratio for each hospital.
An OR>1 indicates increased odds of being discharged within 6 hours.
Non-ACS patients

Median reduction length of stay = 2.9 h (2.4-3.4)
SAFETY

• There was no difference in the proportions of patients with a MACE within 30 days in the cohorts discharged within 6h:
  • pre-implementation = 0.52%;  
  • post-implementation = 0.44%

NO PATIENT MANAGED ACCORDING TO PATHWAY HAD MACE

CONCLUSIONS?