The effect of a national ambulance Quality Improvement Collaborative on performance in care bundles for acute myocardial infarction and stroke

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27 February 2012
National clinical indicators

- 5 domains, 20 indicators: pilot 2007, now cycle 8

M3 Two Pain Scores recorded

Performance vs. Criterion Denominator

Mean 71.73%

Identifiers
Mean
UCL
LCL
M5 Analgesia Given (Morphine and/or Entonox)
Care bundle for AMI M1+M2+M5+M5
Scale of the problem

- Acute myocardial infarction: 250,000 per year, 101,000 deaths per year
- Stroke & TIA: 150,000 per year
- £29 billion
Evidence for standards

- National Service Framework for CHD
- National Stroke Strategy
- Joint Royal Colleges Ambulance Liaison Committee (JRCALC) guidance
Acute Myocardial Infarction

- M1 Aspirin
- M2 GTN
- M3 Two pain scores
- M4 Morphine given
- M5 Analgesia (morphine or Entonox) given
- Care bundle = M1+M2+M3+M5
Stroke

- S1 FAST assessment recorded
- S2 Blood glucose recorded
- S3 Blood pressure (SBP+DBP) recorded
- Care bundle = S1+S2+S3
Aim: to improve prehospital care for CVD

- To improve delivery of AMI care bundle from baseline (43%) to at least 70% within 2 years
- To improve care delivery of stroke care bundle from baseline (83%) to > 90% within 2 years
- To develop patient reported outcome measures for AMI and stroke
- To increase diffusion of quality improvement (QI) methods to front line ambulance staff
Who was involved?

- DOCC/CEOs
- Audit leads/NASQCG
- Central steering group/improvement team
- Local QI teams: QI leads & fellows
- Local QI collaboratives
What did we do and why?

**Problem:**
CVD (AMI and stroke) presenting to ambulance services

**Population:**
Adults aged 40 and over

**Priorities (aims):**
Improvement in care bundles for CVD

**Inputs:** QI methods

**Outputs:** Improved care bundles for AMI and stroke

**Participants**
Ambulance
NHS trusts

**Activities**
Collaborative approach
Education
Identifying/overcoming barriers
QI methods
Feedback

**Improved AMI and stroke outcomes**

**Anticipated outcomes**

**Unanticipated Outcomes**

**Short term:**
Quality collaboratives for CVD
Improved care bundles for CVD

**Medium:**
Increased utilization of QI methods
Improved care bundles for CVD and PROM
PROM/PREM

**Long term:**
Use of QI methods for other areas
Improved care (and bundles) for other clinical areas
How we made improvements?

- Focus groups & interviews (with practitioners and patients)
- Process mapping & critical-to-quality (CTQ)
- Plan-Do-Study-Act (PDSA) cycles
- Data collection, analysis and feedback using statistical process control (SPC)
Baseline

EMAS % Rec'd Care Bundle for AMI

Special Cause Flag

Individual Value

Wk Commencing

0.00  10.00  20.00  30.00  40.00  50.00  60.00  70.00  80.00  90.00  100.00

Small tests of change
Feedback

EMAS % Rec'd Care Bundle for AMI
EMAS % Rec'd Care Bundle for Stroke

Wk Commencing

0.00 10.00 20.00 30.00 40.00 50.00 60.00 70.00 80.00 90.00 100.00
Variation with age and sex

AMI

Stroke

Total sample – AMI

Stroke – total sample
# AMI care bundle

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**Odds ratio for time (per four weeks)**

1 GWAS 2 WMAS 3 SCAS 4 LAS 5 YAS 6 SEC 7 NEAS 8 EEAS 9 SWAS 10 NWAS 11 EMAS 12 IOW
Stroke care bundle

1 GWAS 2 WMAS 3 SCAS 4 LAS 5 YAS 6 SEC 7 NEAS 8 EEAS 9 SWAS 10 NWAS 11 EMAS 12 IOW
Overall

- Significant improvements in 10 (of 12) participating trusts for the AMI care bundle and eight (of 12) for the stroke care bundle.
- Eleven of 12 trusts showed a significant improvement in either the AMI or stroke care bundle.
- Six out of twelve showed significant improvements for both AMI and stroke.
- Overall performance for the care bundle for AMI increased nationally in England from 43 to 79 percent and for stroke from 83 to 96 percent.
Impact

- Identified gaps in processes and outcomes
- Investigated why gaps occurred
- Tested interventions to improve care
- Measured the effects of interventions
Conclusion

- Cooperation and collaboration
- Improving, not just measuring
- Future application to other areas
Thanks

- **Steering Group:** Sarah Black, Gurkamal Virdi, Rachel Fothergill, Anne Spaught (co-lead), Nadya Essam (project manager), Deborah Shaw (data analyst)

- **University of Lincoln:** Dr Zowie Davy (research fellow), Fiona Togher (research assistant)

- **Prof Michael Dewey:** (statistician)
Thank you for listening!