Do Critical Care Outreach Teams Improve Patient Outcomes?

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- OUR ROLE WITHIN THE HOSPITAL:
  - Respond to any patient with an increased EWS
  - Respond as part of the cardiac arrest team
  - Manage patients requiring NIV

- Closely monitor patients awaiting admission to critical care
- Support and facilitate the weaning of tracheostomies
- Or if a staff member is concerned about a patient
- Follow up all patients discharged from critical care
- Provide education and support to ward staff

Purpose of the study- to examine the impact of the CCOT on:

- Hospital Mortality Rates
- Cardiac Arrest Rates
- ICU/HDU Admission Rates
- ICU/HDU Readmission Rates
- Outcome of all patients reviewed by the CCOT
- Reasons why CCO review patients

Methodology

- Single site Quant. Retrospective documentary review
- Six month period pre & post CCO
- 1 June – 30 November 2016 (Pre CCO)
- 1 June – 30 November 2017 (Post CCO)

Inclusion/Exclusion

Inclusion:

- All Adult patients (> 18 years)

Exclusion:

- Paediatric Patients

- University Teaching Hospital Bed Capacity 708 patients
  - 11 Active General ICU Beds + 6 HDU Beds. 4 Cardio Thoracic ICU Beds
- Critical Care Outreach Team (CCOT) established in Dec 2016

- Team comprises of 1 ANP & 3 Senior ICU Nurses
- Coverage is provided 7 days per week & 24 hours at the weekend
- No published Irish Studies surrounding CCO
- Any member of the MDT can refer if criteria met

- Early Warning Score ≥3
- Mean BP ≤ 60mmHg
- Fluid bolus for BP for ≥2 hours
- GCS ≤ 14 or equivalent to patient baseline
- Heart rate > 100beats per minute
- Urine output ≤0.5ml/kg/hr for last 4 hours
- Respiratory rate ≥20 breaths per minute
- SpO_2 ≤94%
- Oxygen requirements ≥ 50%
- LA ≥2.0

- Ethics approved pre study
- The Health Informatics manager extracted data relating to ICU/HDU admissions & readmissions
- Data relating to Hospital mortality & Patient Outcome obtained from hospital database
- Data relating to cardiac arrests obtained from Resuscitation Officer

Data Analysis

- SPSS – Wilcoxon Test
- A p-value of <0.05 was used
- A p-value <0.05 indicates a significant difference
- A p-value >0.05 indicates no significant difference.

Results

- CCO Impact on ICU/HDU Admission Rates
  - 391 patients admitted to ICU pre CCO
  - 396 patients admitted to ICU post CCO
  - No Significant difference (p=0.0531)

- 290 Patients admitted to HDU pre CCO
- 311 Patients admitted to HDU post CCO
- No significant difference (p=0.094)

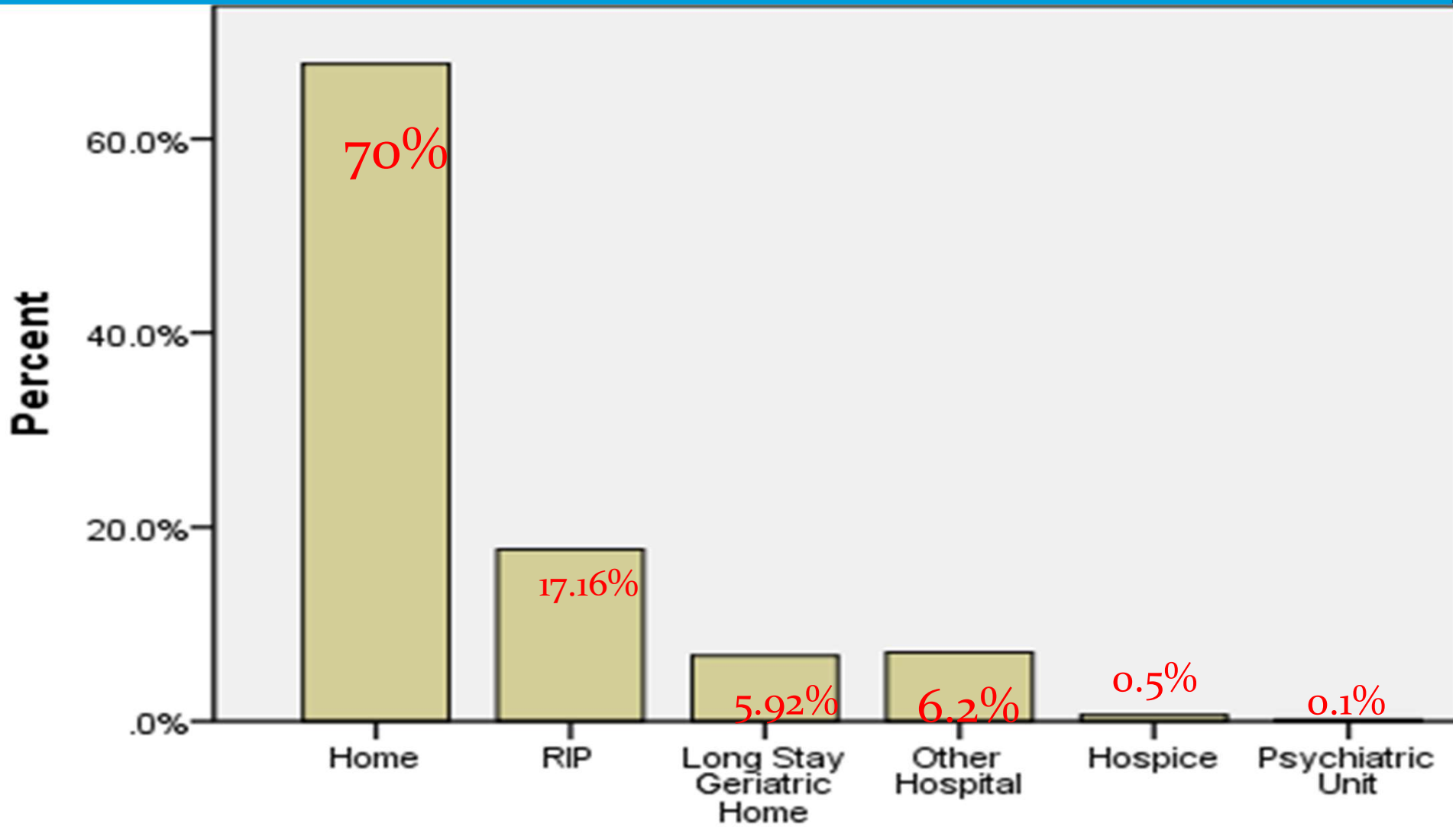
Readmission Rates to ICU/HDU

Readmission Rates <72hrs

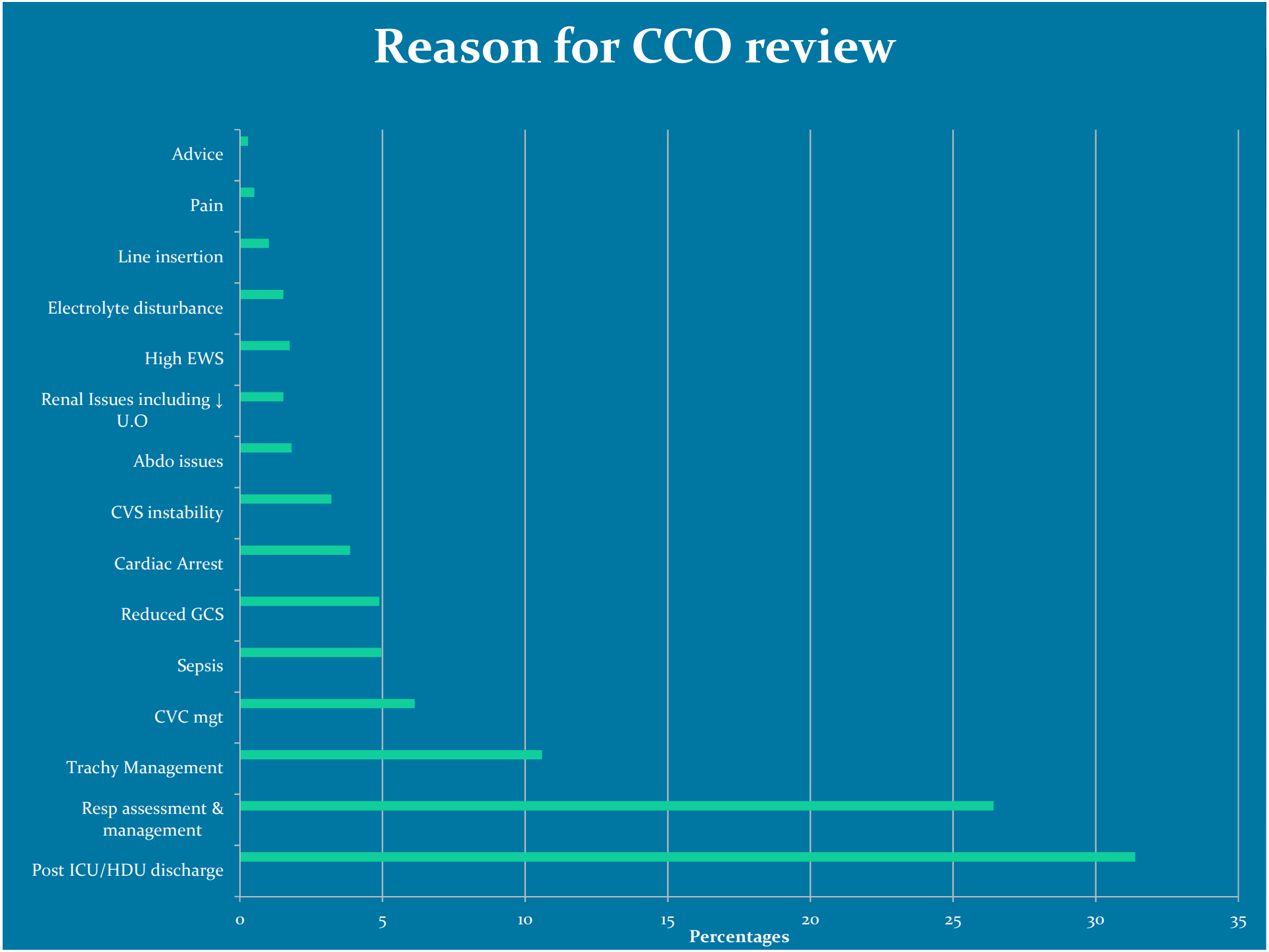
- 4 patients readmitted to ICU pre CCO
- 5 patients readmitted to ICU post CCO ($p = 0.500$)
- 0 patients readmitted to HDU pre CCO
- 4 patients readmitted post CCO ($p = 0.125$)

Patient Outcomes

- 1463 episodes of care – A total of 693 patients

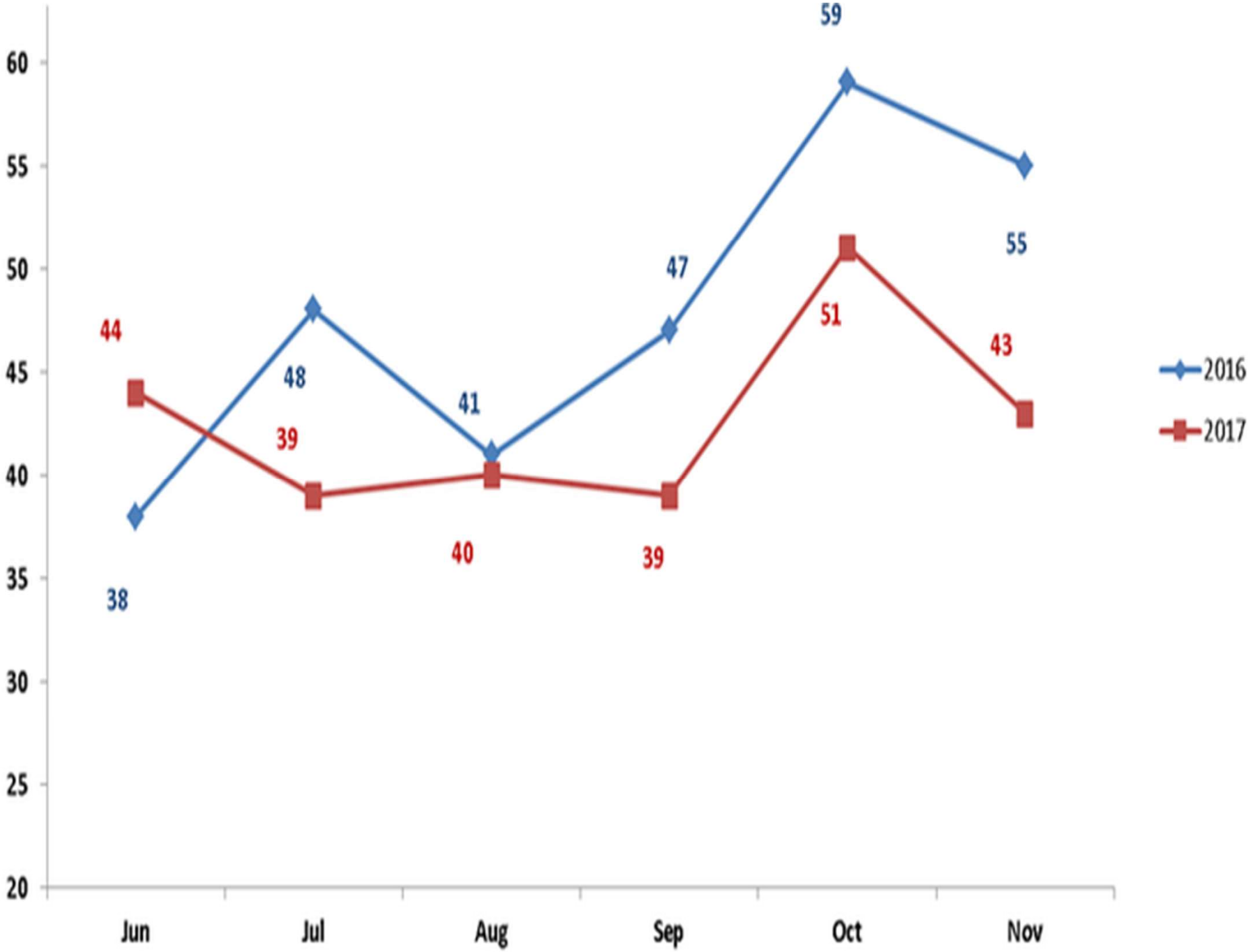


Reason for CCO review



Impact On Mortality Rates

- Pre CCO 15,766 hosp. admissions (excluding electives)
  - 288 patient deaths
- Post CCO 15,960 hosp. admissions (excluding electives)
  - 256 patient deaths
- P = 0.047.
- Reduction in hosp mortality of 11.1% in 6 months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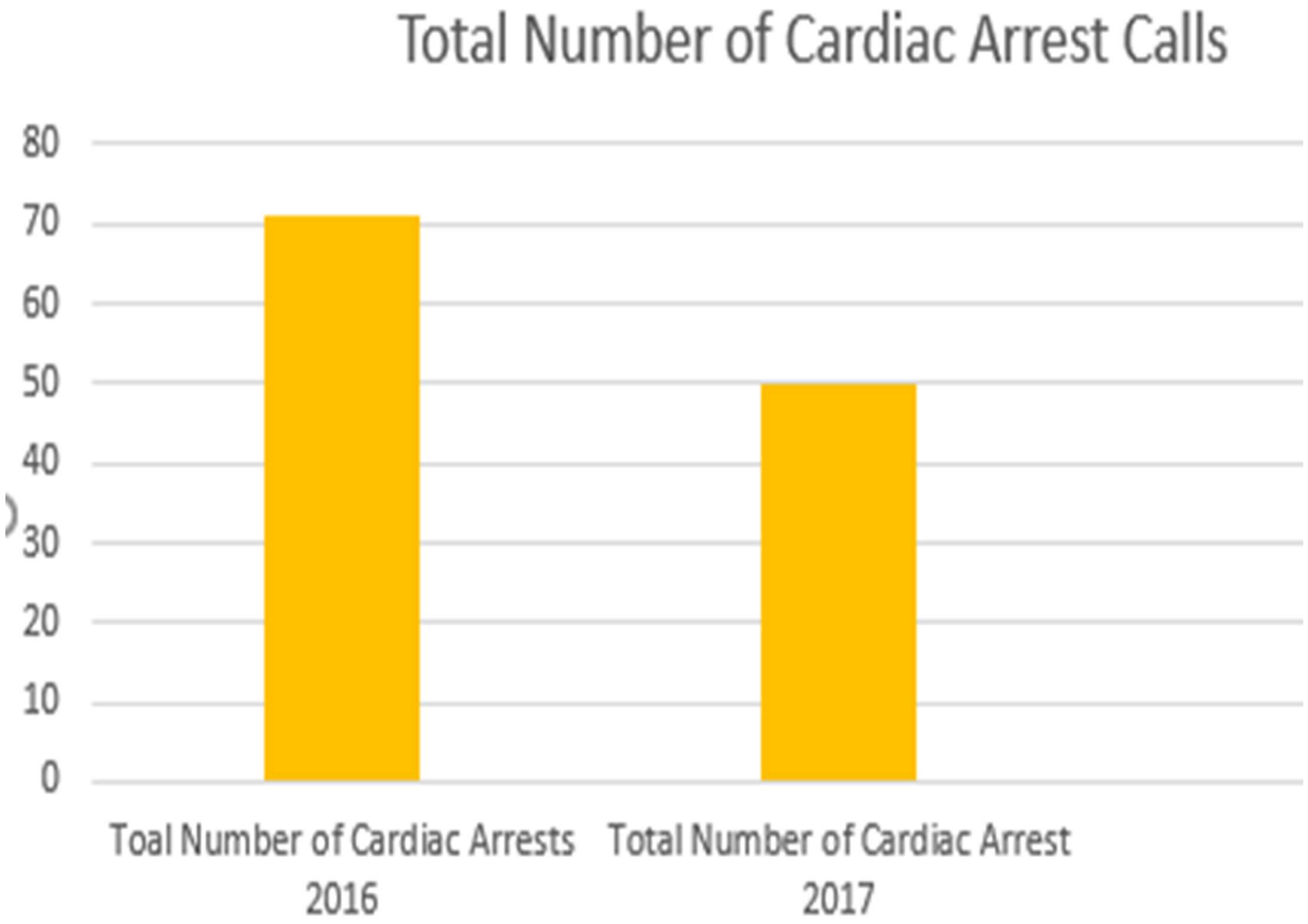
51
43
2016
2017

Impact on Cardio- Respiratory Arrests

- Pre CCO 71 Cardiac Arrest Calls
  - 9 of these were actual cardiac arrest calls
  - 62 were Calls For Help
- Post CCO 50 Cardiac Arrest Calls
  - 9 of these were actual cardiac arrest calls
  - 41 were Calls for Help
- Cardiac Arrest Calls significantly reduced 29.5% ($p = 0.047$)
- Actual Cardiac Arrests unchanged ($p = 0.266$)


Total Number of Cardiac Arrest Calls
80
70
60
50
40
30
20
10
0
Toal Number of Cardiac Arrests 2016
Total Number of Cardiac Arrest 2017

Summary

- No significant differences in ICU/HDU admission rates
- No significant difference in readmission rates to ICU/HDU
- Significant difference in cardiac arrest calls - Cardiac arrest calls fell by 29.5% post implementation of CCO ($p<0.047$).
- Hospital mortality rates fell by 11.1% ($p<0.047$) post implementation of CCO.

Strengths

- Included all medical and surgical patients
- Seasonal Fluctuations accounted for
- No other initiatives started in the hospital

Comparisons to Other studies

- Some studies showed an increase in ICU/HDU admission rates
- Multiple studies showed a reduction in readmission rates
- Similar results regarding Cardio-resp arrests & mortality rates