



Paediatric Peri-Operative Cardiac Arrest – A Pan-London Initiative

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Introduction

- Paediatric peri-operative mortality is a simple and objective outcome measure of the safety of anaesthesia and surgery¹
- Wake up Safe is a quality improvement initiative in America that contains a registry of serious adverse events in paediatric anaesthesia
- The National Confidential Enquiry into Patient Outcome and Death (NCEPOD) recommends data is collected on children's post-operative clinical outcomes²
- Anecdotally however, heterogeneity exists between trusts in record keeping and finding data for reflective practice can be challenging.
- The APAGBI Scientific Committee accepted our survey proposal on paediatric peri-operative morbidity and mortality (M&M) to run as a national APAGBI Linkmen Survey
- Most respondents (n= 31; 54%) did not know where or how to access retrospective data about paediatric peri-operative cardiac arrests at their institution
- Consequently we sought to gather widespread data on perioperative arrest, with a view to establishing a solution to this problem



PEDIATRIC ANESTHESIOLOGY: ORIGINAL CLINICAL RESEARCH REPORT
Pediatric Cardiopulmonary Arrest in the Postanesthesia Care Unit, Rare but Preventable: Analysis of Data From Wake Up Safe, The Pediatric Anesthesia Quality Improvement Initiative

Christensen, Robert E. MD; Haydar, Bishr MD; Voepel-Lewis, Terri D. PhD
 Anesthesia & Analgesia: April 2017 - Volume 124 - Issue 4 - p 1231-1236

PATIENT SAFETY: ORIGINAL CLINICAL RESEARCH REPORT
Reporting of Perioperative Adverse Events by Pediatric Anesthesiologists at a Tertiary Children's Hospital: Targeted Interventions to Increase the Rate of Reporting

Williams, Glyn D. MBChB, FFA[†]; Muffly, Matthew K. MD[†]; Mendoza, Julianne M. MD[†]; Wixson, Nina MSN[†]; Leong, Kit RHIT, CPHQ, HACCP[†]; Claire, Rebecca E. MD[†] **Author information** ©
 Anesthesia & Analgesia: November 2017 - Volume 125 - Issue 5 - p 1515-1523

Aim

- To collect prospective data on paediatric peri-operative cardiac arrests over a one-year period from May 2019-2020 in London
- We involved multiple centres to increase case yield of a rare adverse event and in order to expand learning

Method

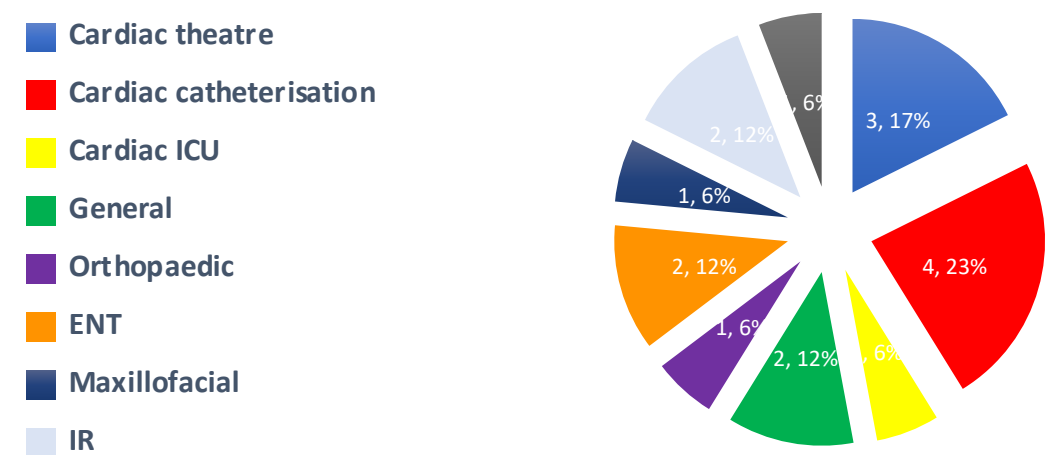
- Following local clinical governance approval, 12 hospitals in London registered for submission of perioperative cardiac arrest data. Units comprised five specialist paediatric centres and seven non-specialist.
- Anonymised data including patient demographics, co-morbidities, ASA status and details of arrest were submitted.

Perioperative cardiac arrest was defined as cessation of adequate mechanical cardiac activity requiring CPR (+/- defibrillation) within 24-hours of the onset of anaesthesia. Critically ill patients having anaesthesia as part of intensive care management were excluded.

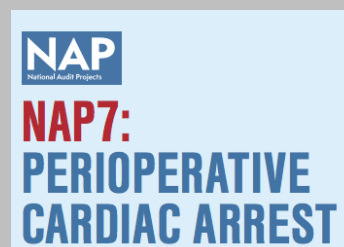
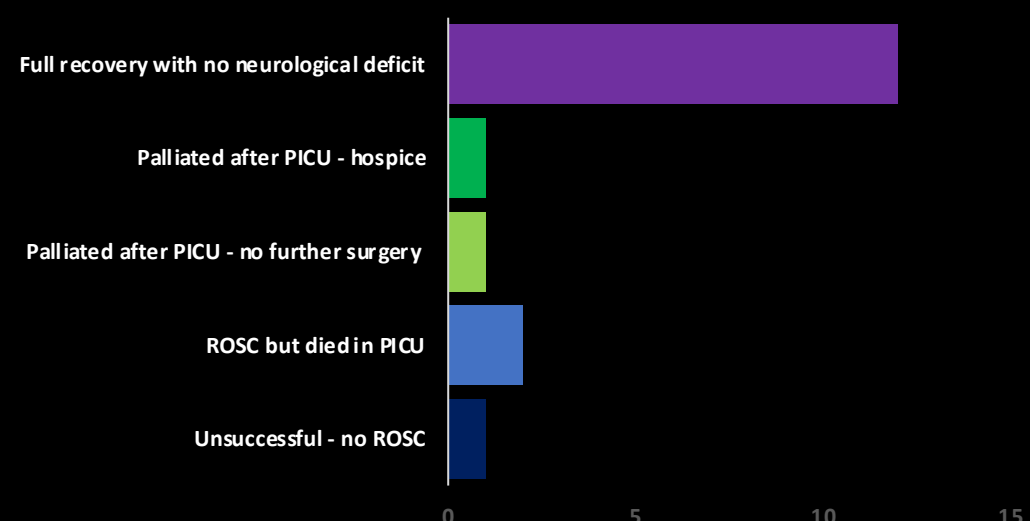
Results

- Total 17 arrests; 94% ASA 3 / 4
- 71% male (n=12); median age 5 years (8 days – 16 years)
- 5 infants and 3 neonates
- Most common co-morbidity cardiac 59% (n=10)
- Most cases occurred in cardiac theatres / cardiac IR 47% (n=8)
- Arrest type PEA in 15 cases
- Median arrest length 8 minutes (1 – 18)
- Mortality 29% (n=5)

Location of Cardiac Arrest



Outcome following cardiac arrest



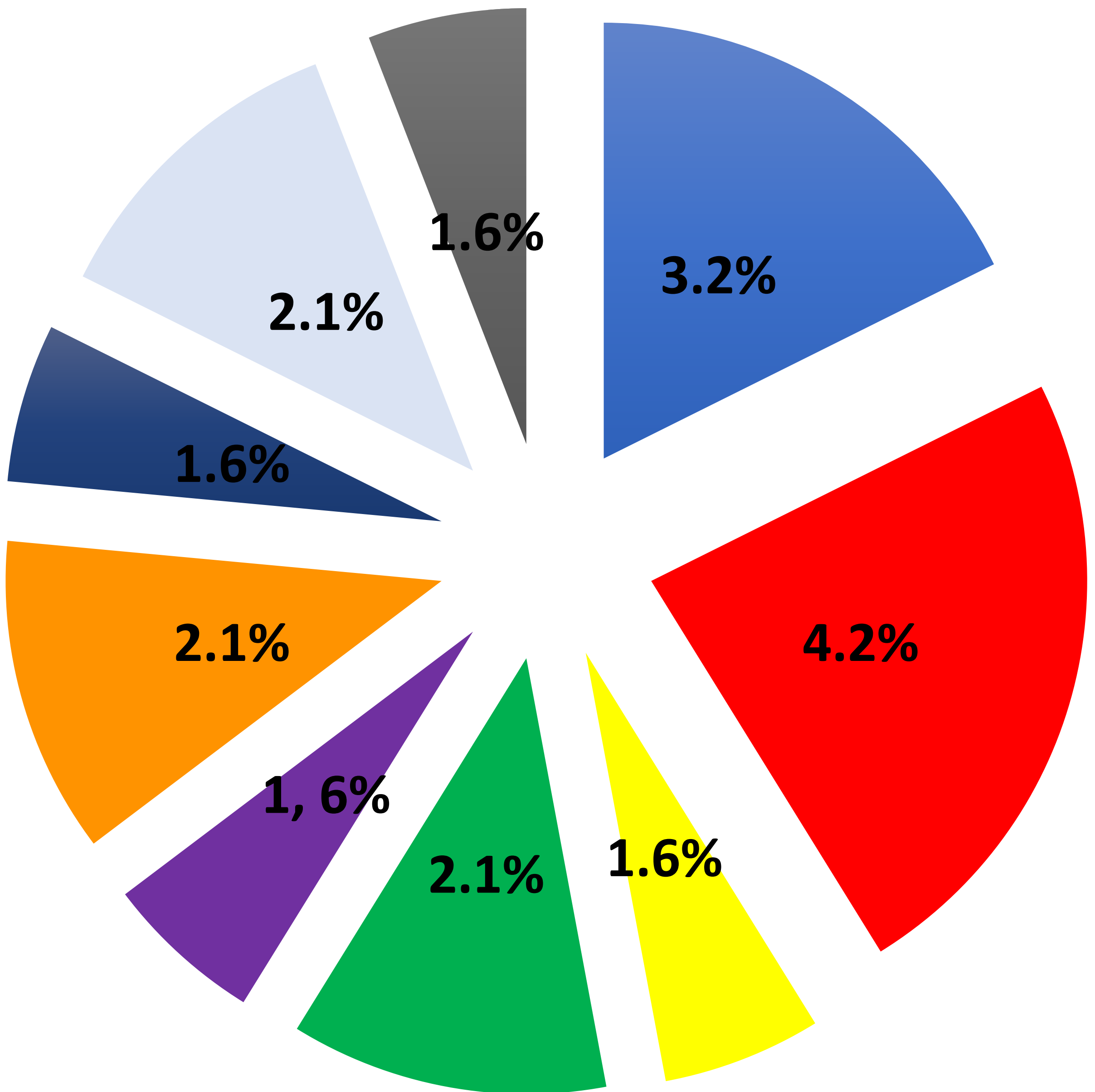
Conclusion

- The total number of paediatric cardiac arrests in the perioperative setting is low
- High risk groups included neonates and infants, children with cardiac co-morbidities and ASA status 3 or 4 patients
- The importance of this topic is highlighted by its selection as the seventh UK National Audit Project (NAP7)
- A national UK registry is recommended to continue to capture future data on this important topic long term

References

1. De Bruin L, Pasma W, Van Der Werff D et al. Perioperative hospital mortality at a tertiary paediatric institution. *BJA*. 2015;115(4);608–615.
2. NCEPOD. Surgery in Children. Are we there yet? 2011. <https://www.ncepod.org.uk/2011sic.html>

Location of Cardiac Arrest



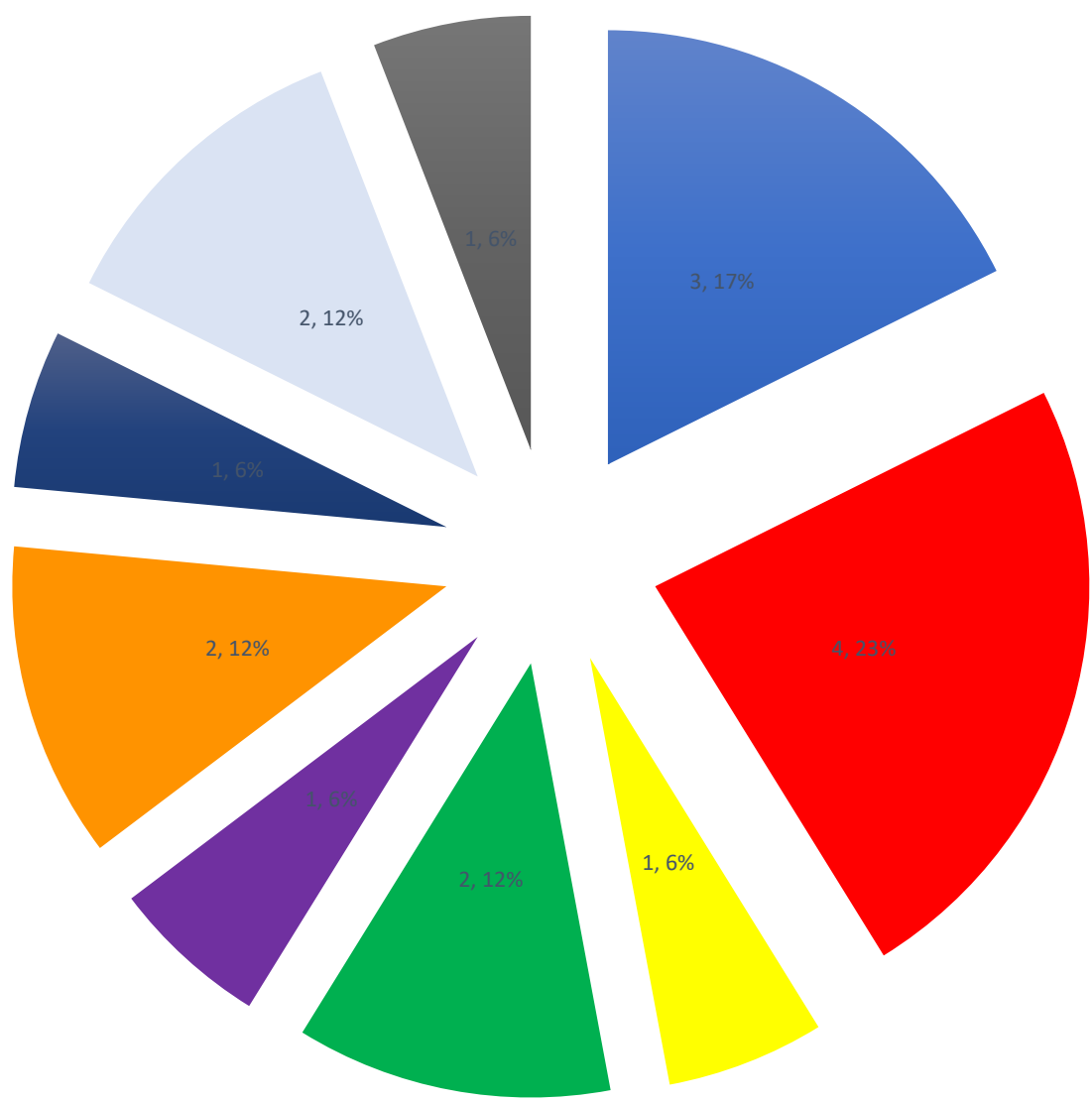
■ Cardiac theatre ■ Cardiac catheterisation ■ Cardiac ICU ■ General ■ Orthopaedic ■ ENT ■ Maxillofacial ■ IR ■ Urology

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Location of Cardiac Arrest



■ Cardiac theatre

■ Cardiac catheterisation

■ Cardiac ICU

■ General

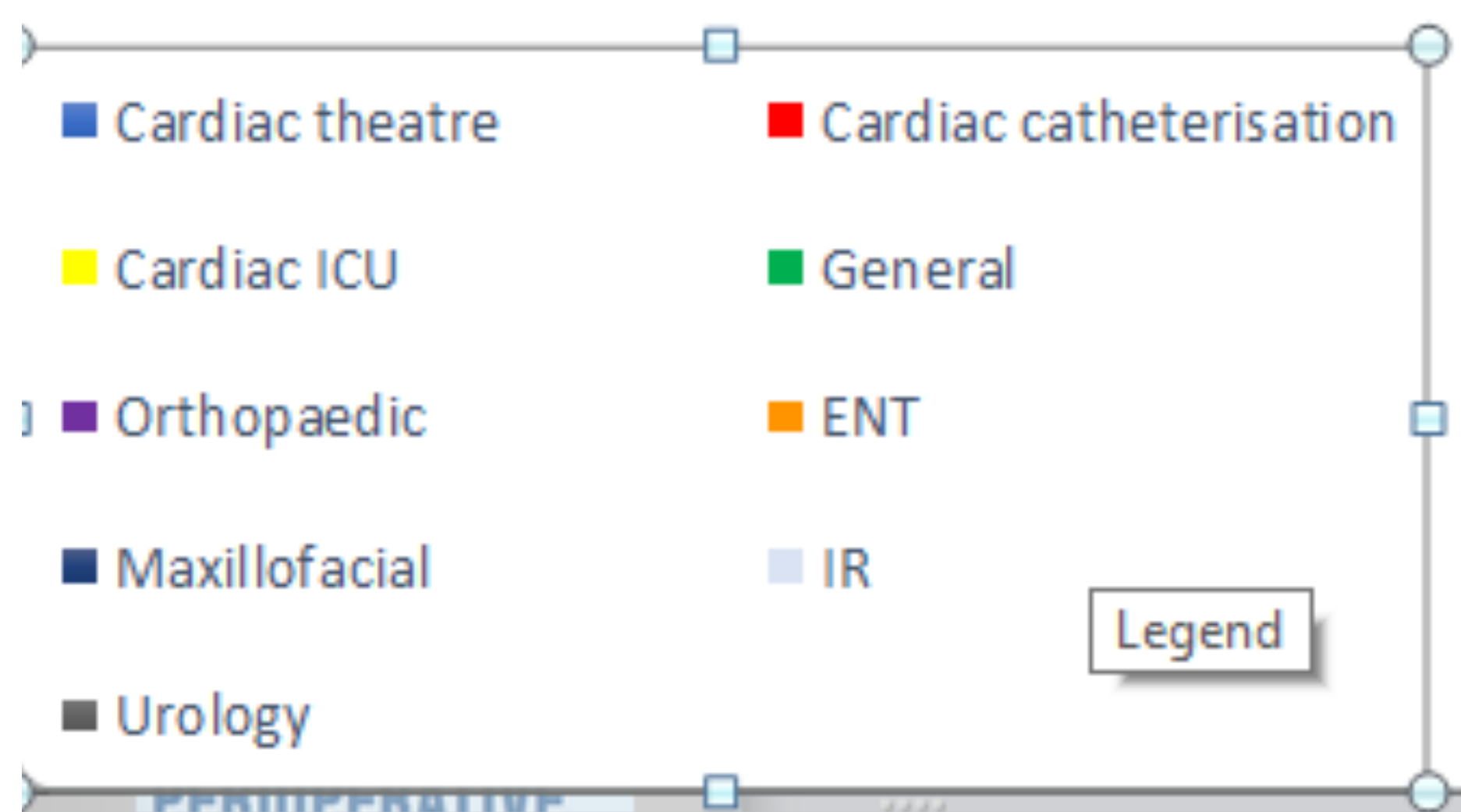
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