



The Royal College of Anaesthetist  
Educating, Training and Setting Standards in  
Anaesthesia, Critical Care and Pain Management



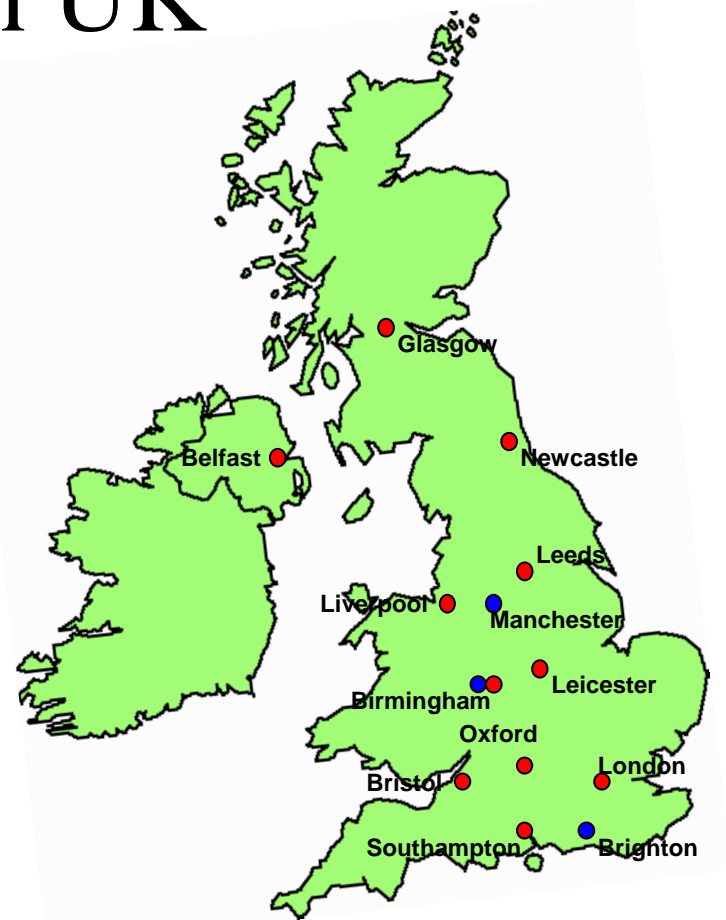
# Congenital Cardiothoracic services in the UK

Dr. Siân Jaggar  
Consultant Anaesthetist  
Royal Brompton Hospital  
London



# Congenital Cardiac Intervention Activity in UK

- 18 hospitals undertaking surgery for congenital heart disease
  - 4 provide no paediatric service (3 of which allied to specialist paediatric hospitals)



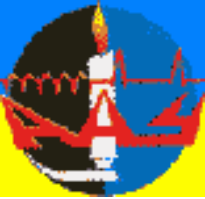


The Royal College of Anaesthetist  
Educating, Training and Setting Standards in  
Anaesthesia, Critical Care and Pain Management



# Services for Congenital Heart Disease

- National statistics for UK now available on web
- [www.ccad.org](http://www.ccad.org)
- Provides minimum dataset for each hospital:
  - Age
  - Gender
  - Weight
  - Diagnosis
  - Consultant
  - Procedure
  - Operation
  - Time to discharge



The Royal College of Anaesthetist  
Educating, Training and Setting Standards in  
Anaesthesia, Critical Care and Pain Management



# Congenital Cardiac Disease

- Paediatric Services
- GUCH / ACHD Services
  
- Cardiothoracic surgical interventions
- Catheter laboratory work
- Non-cardiac surgery



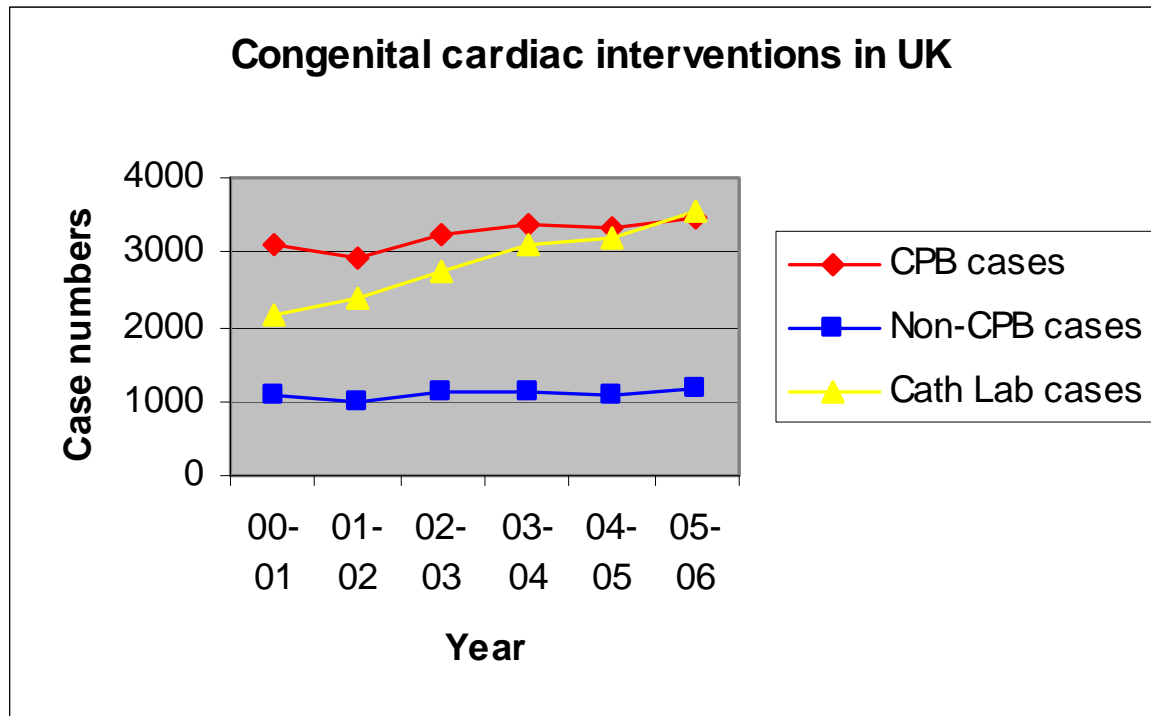
The Royal College of Anaesthetist  
Educating, Training and Setting Standards in  
Anaesthesia, Critical Care and Pain Management



# Paediatric Cardiac Services



# Paediatric Cardiac Activity in UK



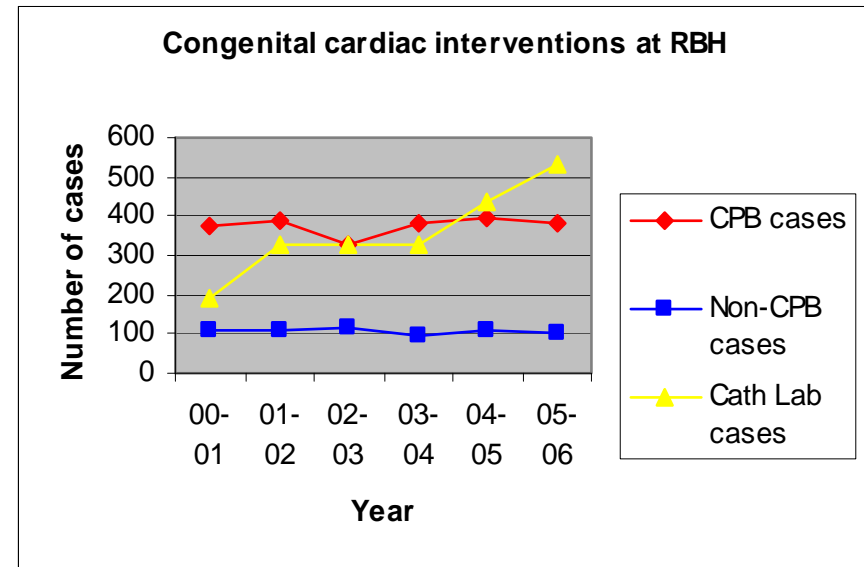
- Surgical case numbers stable
- ↑ing catheter laboratory interventions  
– All GA



# Paediatric Cardiac Activity at RBH



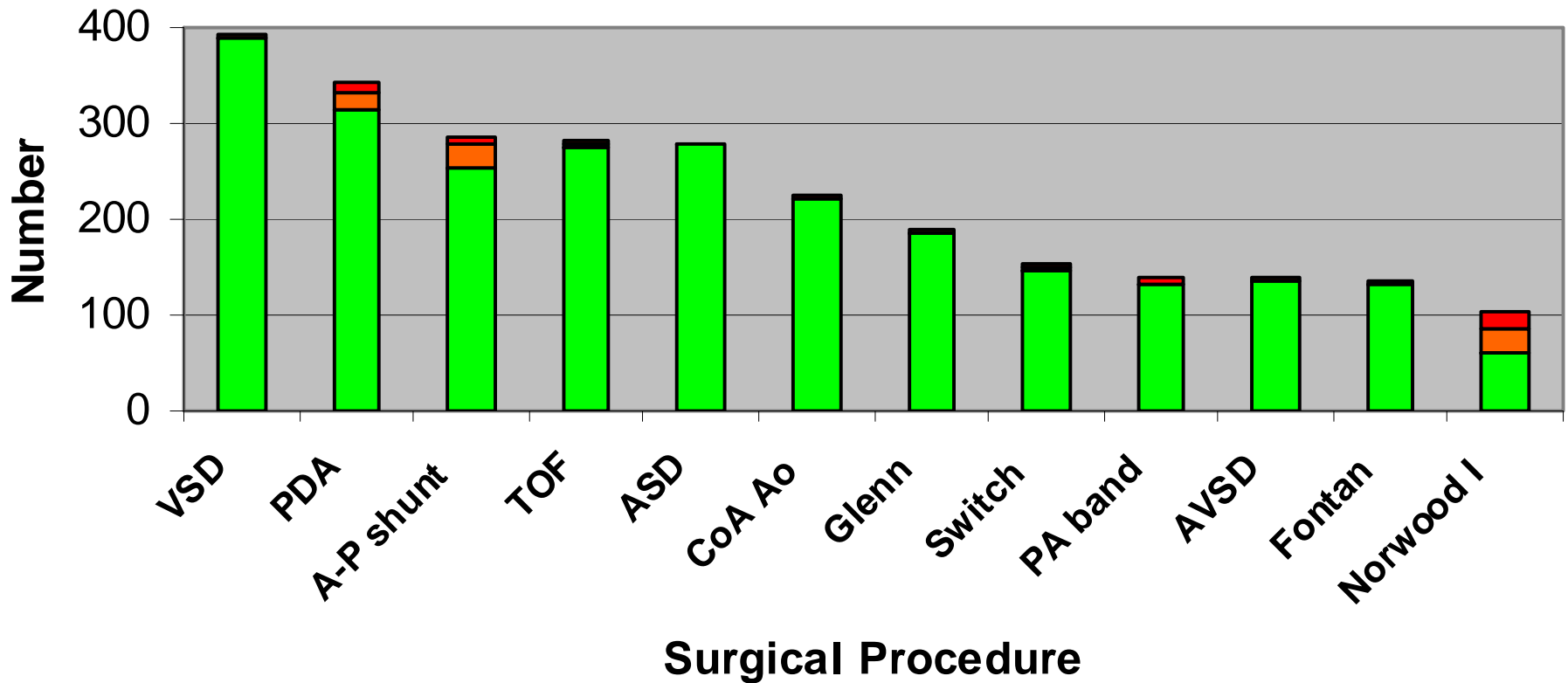
- Royal Brompton Hospital :
  - 37 paediatric beds (5 day care)
  - 12 PICU beds
  - Adult & AICU facilities



- ~ 10-15% UK activity



# Outcome of Common Paediatric UK Surgical Procedures (2005-2006)



■ > 1-year survival ■ 30day-1year survival ■ < 30-day survival





The Royal College of Anaesthetist  
Educating, Training and Setting Standards in  
Anaesthesia, Critical Care and Pain Management

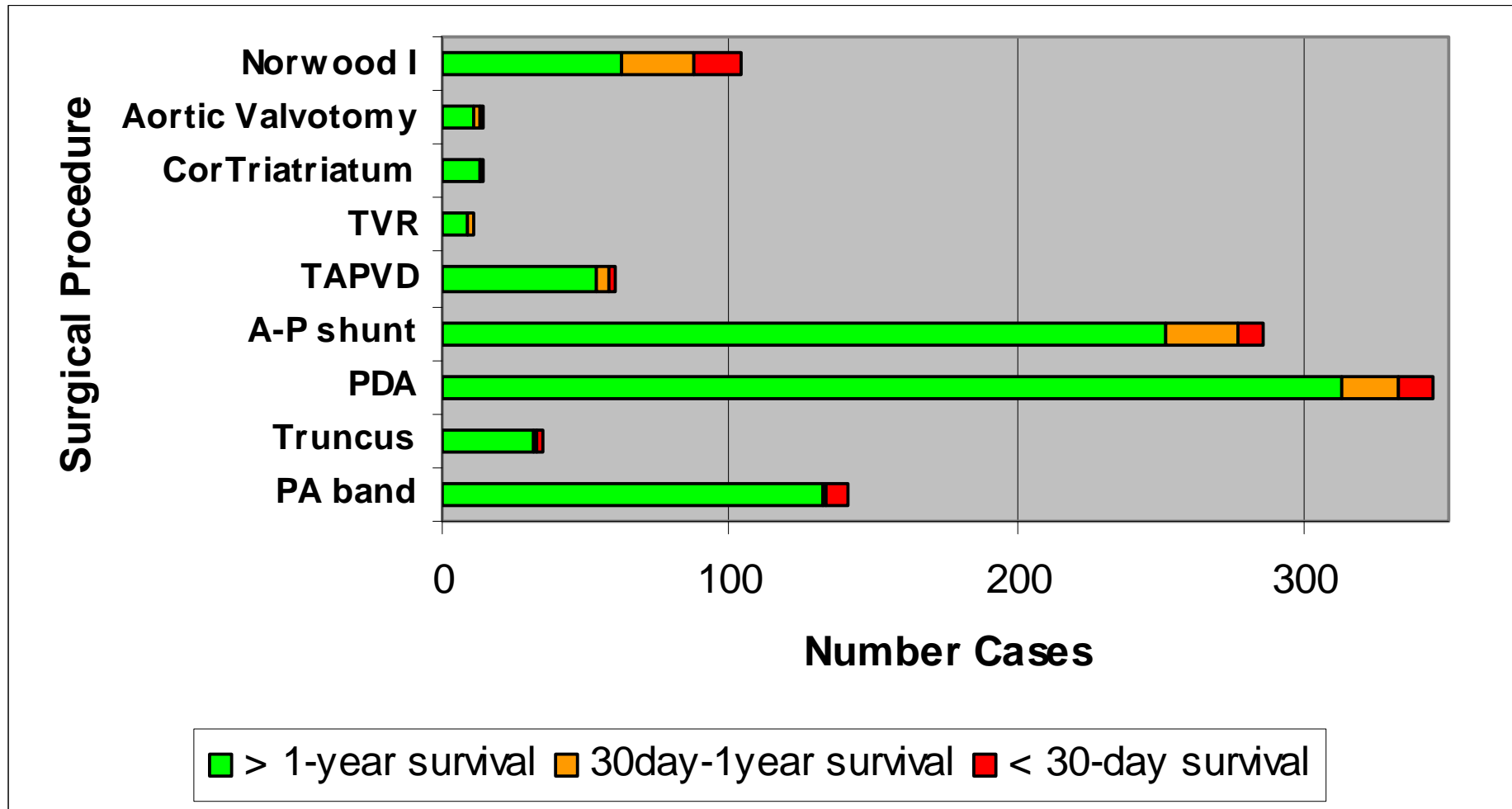


# Which Surgical Procedures do Least Well?

| <b>Surgical Procedure</b> | <b>% 30-day survival</b> | <b>% 1-year survival</b> |
|---------------------------|--------------------------|--------------------------|
| <b>Norwood I</b>          | <b>84</b>                | <b>60</b>                |
| <b>Aortic Valvotomy</b>   | <b>92.3</b>              | <b>81.8</b>              |
| <b>Cor Triatriatum</b>    | <b>94.3</b>              | <b>84.6</b>              |
| <b>TVR</b>                | <b>100</b>               | <b>85.7</b>              |
| <b>TAPVD</b>              | <b>96.7</b>              | <b>85.7</b>              |
| <b>A-P shunt</b>          | <b>96.9</b>              | <b>88.2</b>              |
| <b>PDA</b>                | <b>96.8</b>              | <b>91.1</b>              |
| <b>Truncus</b>            | <b>94.3</b>              | <b>93.5</b>              |
| <b>PA band</b>            | <b>97</b>                | <b>93.7</b>              |

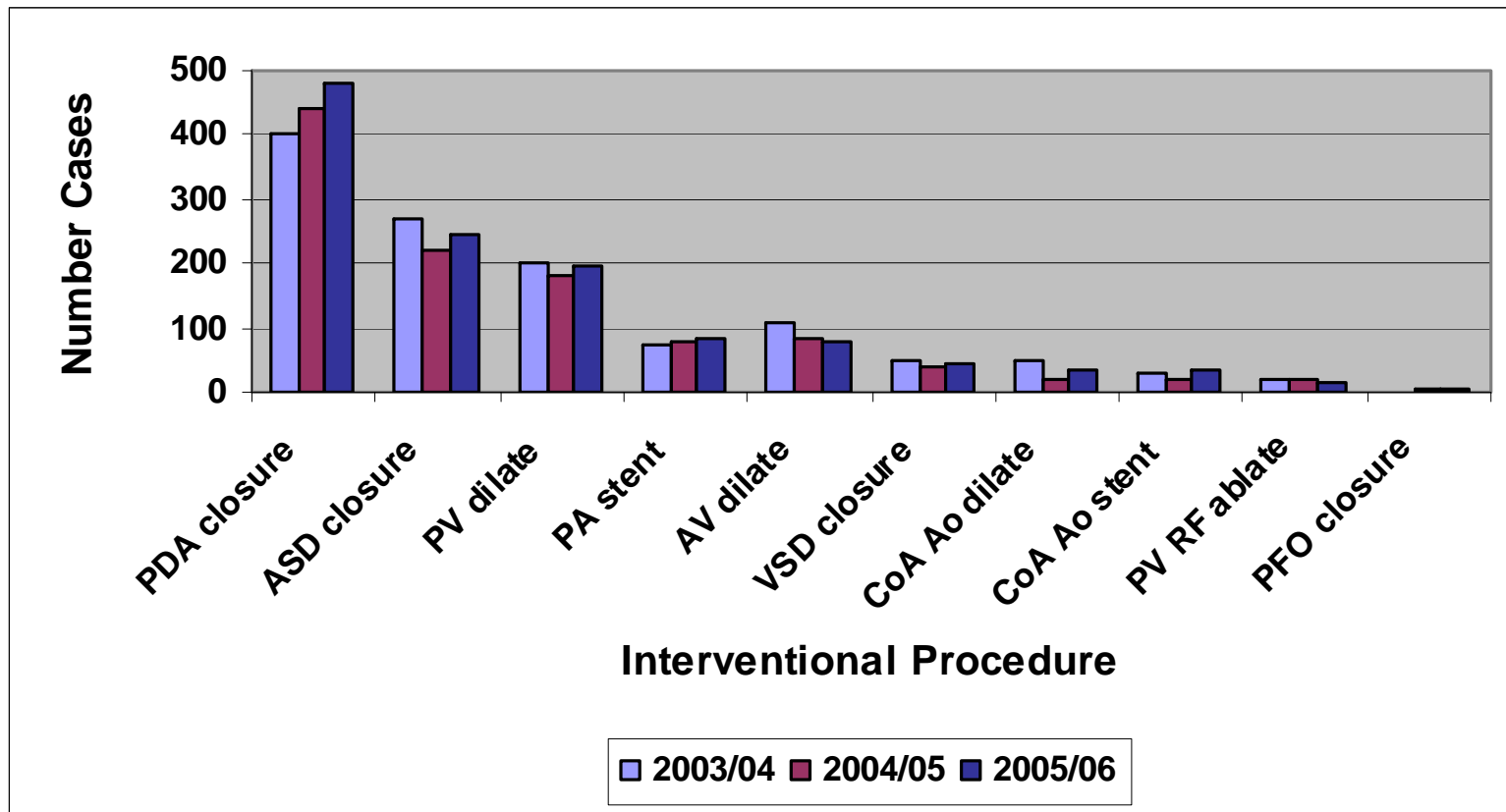


# Which Surgical Procedures do Least Well?





# Paediatric Catheter Lab Practice





# Duration of catheter lab procedures? (RBH 2006)

| Procedure           | Av. time | Min. time | Max. time | IJ / Art line |
|---------------------|----------|-----------|-----------|---------------|
| PDA (n=58)          | 61       | 25        | 180       | 16 / 1        |
| ASD (n=25)          | 53       | 25        | 100       | 14 / 2        |
| PV dilate (n=29)    | 76       | 30        | 190       | 24 / 7        |
| PA stent (n=19)     | 86       | 35        | 180       | 16 / 1        |
| AV dilate (n=10)    | 80       | 50        | 185       | 6 / 3         |
| VSD (n=4)           | 80       | 30        | 120       | 1 / 1         |
| CoA Ao dilate (n=6) | 74       | 35        | 130       | 3 / 2         |
| CoA Ao stent (n=3)  | 75       | 65        | 95        | 2 / 0         |
| PFO (n=1)           | 35       |           |           | 0 / 0         |



The Royal College of Anaesthetist  
Educating, Training and Setting Standards in  
Anaesthesia, Critical Care and Pain Management

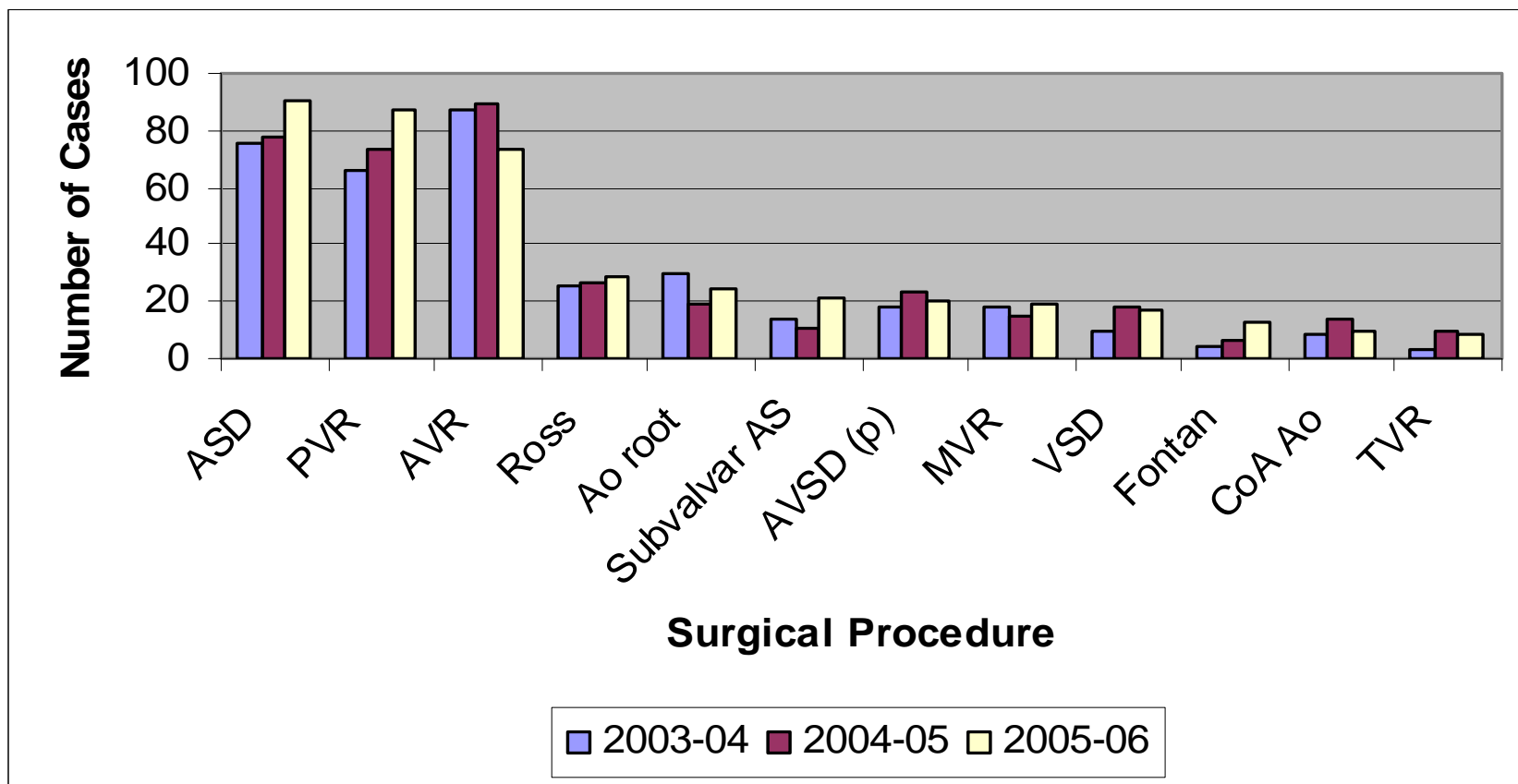


# Adult Congenital Heart Disease Services



# ACHD Cardiac Surgical Activity in UK

- ~ 600 surgical ACHD cases /year in UK
- Few procedures carried out  $\geq 50$ x/year





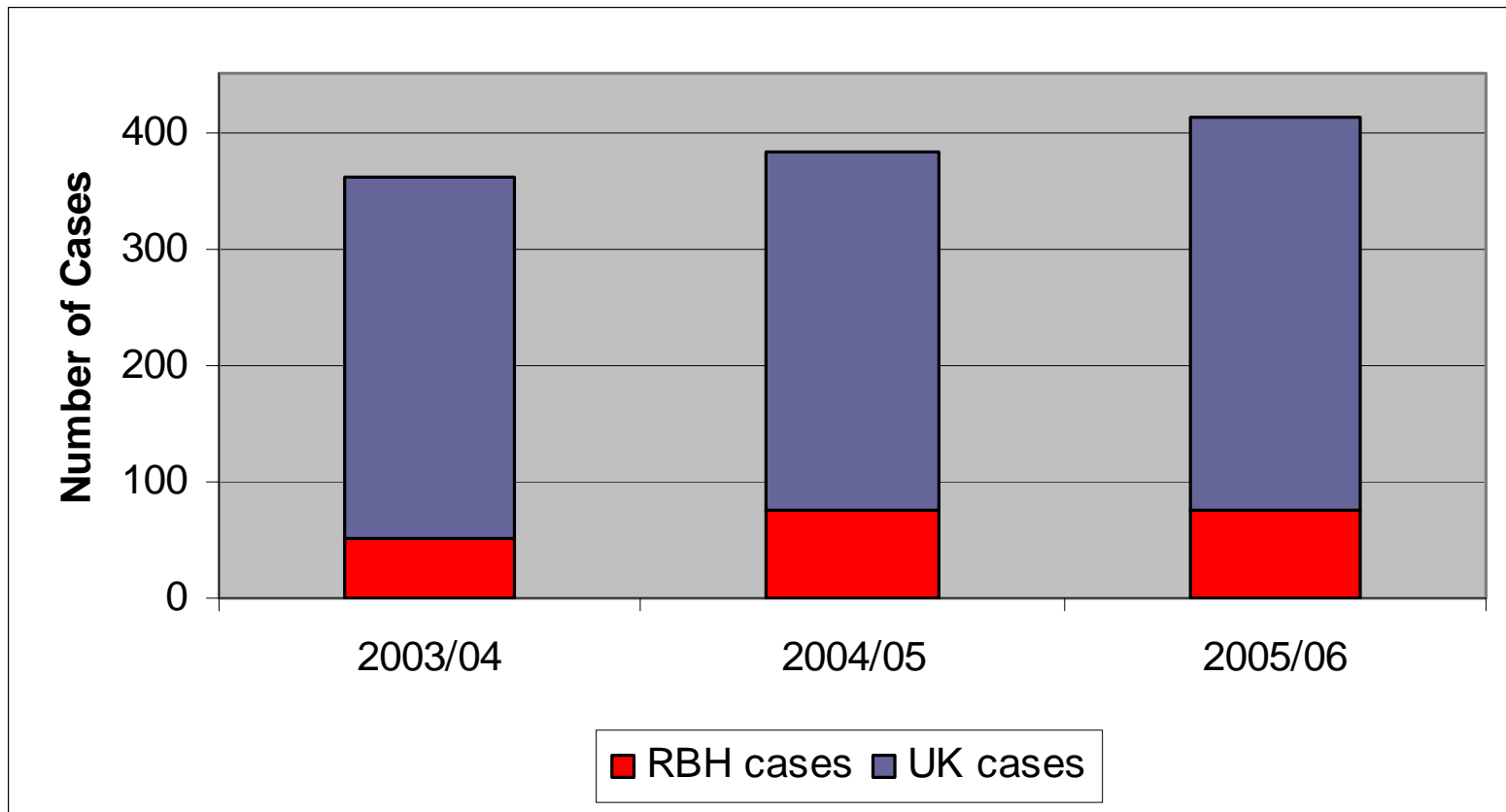
# ICU care following GUCH surgery

## 5yr RBH follow-up ('97-03)

- ~7% of all RBH ICU admissions
  - Almost entirely elective
  - ~92% corrective surgery (i.e. not palliative)
- Low mortality at RBH – 3.7% overall
  - Simple disease = 0%
  - Complex = 10.6%
- Complex patients need:
  - Prolonged admission
  - High level of support
- Pre-op predictors of prolonged ICU stay
  - Complex disease
    - Ebsteins
    - ccTGA
  - ↑Bilirubin
  - Abnormal TFT
- Pre-op predictors of mortality
  - ↑Creatinine

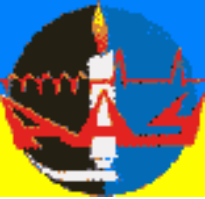


# Adult Congenital Catheter Lab Activity



RBH undertakes > 20% UK activity





# Duration of GUCH catheter lab procedures at RBH (2006)

| Procedure          | Duration (mins) |
|--------------------|-----------------|
| ASD closure (n=22) | 65 (30-110)     |
| PFO closure (n=25) | 58 (20-95)      |
| Stent CoA Ao (n=7) | 115 (60-185)    |
| VSD closure (n=4)  | 90 (60-135)     |

- Device closures use TOE guidance
  - Aortic & Pulmonary valve lesions now enter per-cutaneous valve replacement programme



# Services for Congenital Heart Disease

- 2003 – DoH report on services in UK
  - Little *evidence* for particular training BUT experts suggest:
    - Anaesthetists
      - Appropriate knowledge & skills learnt under continuous supervision
      - Effective communication & involvement in audit
      - $\geq 1$  session / week
    - Surgeons
      - $\geq 4$  sessions/week to maintain skills



The Royal College of Anaesthetist  
Educating, Training and Setting Standards in  
Anaesthesia, Critical Care and Pain Management



# Summary

- Congenital heart disease services involve both adult & paediatric work
- In UK it is centred on 18 sites
  - RBH undertakes 15-25% of this practice
- Requires skilled anaesthetists with ICU availability
- Interventional catheter laboratory work is expanding