

# Blood on Board 10 Month Review



DR RACHEL HAWES  
4<sup>TH</sup> DECEMBER 2015



# Intro

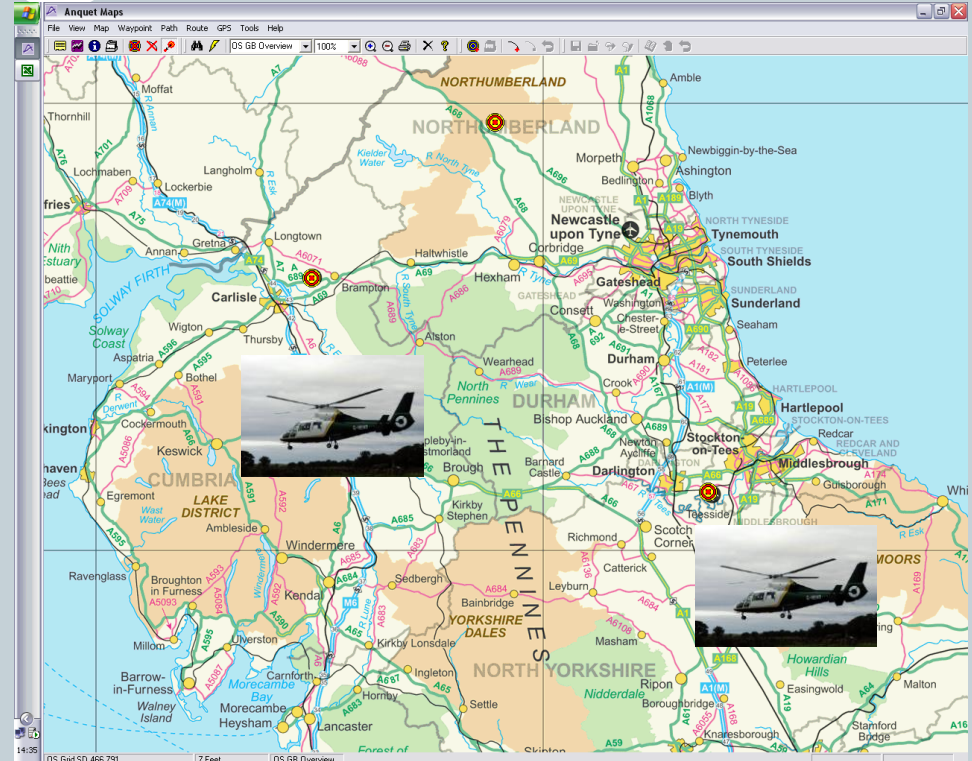


- Overview
- Logistics
- Clinical
- Changes

# GNAAS



- Established 2001
- Regional Service
  - NE, N Yorkshire, Cumbria
- Large area
  - Prolonged transfers
  - Esp Cumbria & N Northumberland
- 365 days per year
- Daylight hours
- 3 helicopters
- 2 cars
- 100% charity funded
  - £4.5million per year
- Severely ill and injured



# Eurocopter Dauphin

- 3 identical
- Twin engine
- 140 km/hr
  
- Largest civilian air amb
- Full length access to patient
- Land in small spaces
  
- Not SAR - winch



# Medical Care



- First Aid to Intensive Care



# Team Work - Dovetail



# The bleeding trauma patient



# Blood on board



- Do we really need it?
- Is it effective?
- Is it safe?
- Can we afford it?

# Blood on board

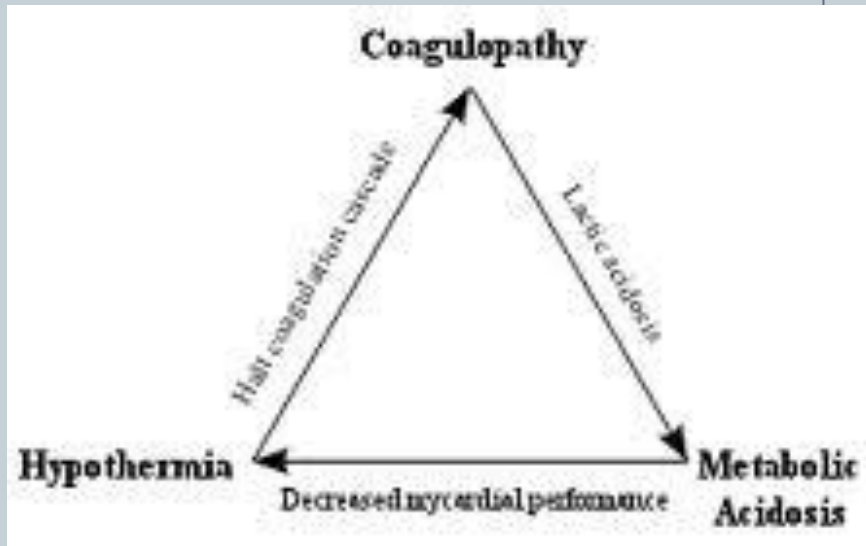


- Do we need it?
  - Haemorrhage leading cause of death
  - 999 to Emergency Dept 40mins
  - 25% already have bleeding problems



# Lessons from the Military

- Triad of trauma death



- Stop Bleeding
- Resuscitate patient
  - Fluids
  - Drugs
  - Blood products

# Issues



- Legislation
- Storage
- Traceability
- Documentation

- Prehospital?
- Constant temperature
- Monitoring & Data log
- Access
- Protected
  
- Weight v fuel
- Power source
- Air Worthiness ££££
- Affordable for a charity

# Blood on Board



# Aims



## Clinical

- Integrated, seamless care
  - Point of injury to hospital care
- Part of a 'bundle of care'
- Improved outcomes
  
- Safe
  - Do no further harm

## Logistic

- Consistent & Reliable
  - 365 days per year
  - Inclement weather
- 100% traceability
- Minimal waste

# Better Together



# Logistics



- Preparation – RVI Lab
- Transport Route – Blood Bikes
- Delivery – ‘Drop Off Locker’ –
  - Sign in/out procedure for BB and GNAAS
  - Fax to RVI from each base monthly
- Collection of unused/ empty boxes
- Documentation
  - Trace unit from donor to recipient
  - From patient back to donor
  - Cool box performance



# Costs!



## Initial Set Up Costs

- Cool Boxes £2,500
- Drop Off Boxes £2,000
- Belmont, Buddy Lite Fluid Warmers £3,500
- (Initial quote £40,000)
  - Private
  - NHS BT
  - Subsidised Hospital Delivery
- Charitable Donations

## Annual Costs

- Transport £2-5,000
  - Blood Bikes Free
  - Inclement weather
- Data Loggers £2,200
- Wastage & Usage??
  - £130 per unit



# Logistics



# 10 Month Logistic Review



- 658 cool boxes prepared & delivered (incl 58 MERIT)
  - 100% delivery record (snow)
  - 100% accuracy of cool box tracking
  - 100% maintenance of cold chain (even at 2 x 72hrs)
- 56 units of blood given
  - 100% traceability
  - No transfusion reactions
- 1257/1316 units of blood recycled

# Time and Day



- Day of the week
  - Mon 3, Tues 6, Wed 5, Thurs 3, Fri 6, Sat 5, Sun 5
- Busiest day – Tues & Fri
- Quietest day – Mon & Thurs
  
- 50% occur between 16:00-18:00hr
- Clustered around lunch time and rush hour
- 2 early morning

# Destination of Patient



- RVI – 18 patients
- JCUH – 7 patients
- Preston – 3 patients
- Leeds – 0 patients
  
- Direct to Mortuary – 5 patients
  - NTGH x 2
  - Durham x 2
  - CIC x 1

# Clinical



# Demographics



- Male = 75%
- Mean Age = 43 years
- Range = 14-79 years
  
- Female = 25%
- Mean Age = 54.6years
- Range = 18-82 years
- (2 young, all >60)

# Mechanism of Injury



- High Speed RTA – 88%
- Stabbing – 6% (2)
- GSW – 3% (1)
- Crush – 3% (1)
  
- Injury Pattern
  - Isolated injury – 5%
  - 2 body cavities – 35%
  - 3 body cavities – 15%
  - 4 body cavities – 15%
  - Traumatic Cardiac Arrest – 30%

# 10 Month Clinical Review



- 33 cases in 10 months (one every 1-2 weeks)
- Correct patients treated
  - Multiply injured
  - CVS instability
  - Traumatic Cardiac Arrest
  - Significantly deranged pH/ BE/ Lactate
  - Abnormal clotting on presentation
  - Significant on-going transfusion requirements in hospital
- 8 unexpected survivors

# Logistic Summary



- Used every 1-2 weeks
- 100% delivery, tracking & cold chain maintenance
- 100% traceability of units given
  
- 56 units given
- 3 units wasted
- 1257/1316 units of blood recycled

# Gains!



- Develop an Integrated Trauma Service
  - Professional, evidenced based, well managed change
- Improvement in patient care
- Improved working relations with neighbouring assets/ other leaders in healthcare
  
- Publicity
  - Media engagement
- Fundraising?



# Summary



- Thanks!
- Logistics Plan
  - Robust & sustainable
  - 100% Traceability
  - Minimal wastage
- Clinical Care
  - Appropriate use
  - Increase in survivors



