



# Factors associated with platelet wastage in Scottish hospitals

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Platelet supply changes



- 80% apheresis platelets
- Bactalert testing
  - Delayed release
  - Recalls
  - 5 or 7 day shelf life
- Hospitals holding platelet stocks





# Scotland



- 12 months to August 12
  - 23 191 platelets booked in
  - 15.6% not transfused

#### Source: Account for Blood









- Monthly report to Scottish hospitals
- Total red cell and platelet issues and wastage
- By hospital:
  - Monthly platelet issues: 0 to approx 300
  - Monthly platelets 'not transfused': 0 to >85%













We were intrigued by the wide variation in platelet wastage rates and looked for reasons to explain this.





# Account for Blood



- An automated system that extracts data from Scottish Blood Banks
- ETL
- Stored in data warehouse
- Business Objects interface









- Financial year 2011/12
- Month
- Total platelets booked in, total group O platelets booked in
- Percentage of platelets not transfused
- Platelet age when booked in
  - 'Fresh' (day 3 or earlier)
  - 'Old' (day 4 or 5).
- Blood Bank distance from the supplying Blood Centre
  - <10 miles</p>
  - 10 to 50 miles
  - >50 miles
- Stockholding
  - Yes
  - No



# Analysis - CHAID



- Chi-squared Automatic Interaction Detection
- Decision tree analysis
- Highly visual output







CHAID



- Like other decision trees, CHAID's advantages are
  - output is highly visual
  - easy to interpret.
- Because it uses multiway splits by default, it needs rather large sample sizes to work effectively
- CHAID detects interaction between variables in the data set
  - Establishes the relationships between a 'dependent variable' and other explanatory variables
- An alternative to multiple linear regression and logistic regression







# Conclusions



- Geography, or the distance between blood bank and blood centre, is an important determinant of platelet wastage in Scottish hospitals.
- Not just stock levels and platelet shelf life
- Need to consider:
  - Review of delivery schedules
  - Movement of stock between hospitals





## Conclusions



- Use decision trees again
- The availability of platelets in remote blood banks ensures patient safety
- Is 'wastage' is too harsh a term when platelets keep patients in their local hospital?
- What message should we give donors?

