



National Comparative Audit of the Use of Platelets

East Midland RTC

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The National Comparative Audit Programme

Background information

- A series of audits designed to look at the use and administration of blood and blood components
- Open to all NHS Trusts and Independent hospitals in the UK
- Collaborative programme between NHS Blood and Transplant & Royal College of Physicians
- Endorsed by the Healthcare Commission

National Comparative Audit of the use of Platelets

Why was this audit necessary?

- Sustained high demand for platelets (215,000/year in the UK)
- Significant cost (£48 million/year)
- Risks of blood component therapy
- The need to ensure appropriate use
- No previous national audits of platelet use



National Comparative Audit of the use of Platelets

What were the audit aims & objectives?

- Aims and Objectives
 - Evaluate clinical practice using audit standards drawn, where possible, from the BCSH guidelines for the use of platelet transfusions (2003)
 - Compare platelet transfusion practice of individual hospitals with national practice
 - Identify areas of poor practice and encourage better practice



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Methodology

- **Methodology: Dataset**

- Individual audit questionnaires were designed for patients transfused in 4 clinical categories
- Audit tool piloted in 14 hospitals during March/April 2006
- Web based electronic data tool designed and piloted in May 2006
- On line data collection for the main audit was carried out between June - September 2006



National Comparative Audit of the use of Platelets Participation

We invited

- 279 NHS hospitals
- 74 Independent hospitals

Who took part

- 182 (65%) NHS hospitals sent information
- 5 (7%) Independent hospitals sent information

Number of transfusions audited

- Nationally = 4421 **East Midlands RTC = 246**

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Methodology

- **Methodology – the audit sample**
 - Data collected for 40 consecutive platelet transfusion episodes, with a target sample of
 - 15 in haematology patients
 - 10 in ITU (critical care) patients
 - 10 in cardiac patients
 - 5 in any other group of patients – ‘miscellaneous’ category
 - All patient ages were eligible



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The Audit Results

- 4,421 transfusions audited (>89% of the patients in each clinical category were from hospitals in England)
- Reason for transfusion found for 93%
- 57% were prophylactic transfusions in the absence of bleeding (in line with previous data)
- No platelet count before transfusion in 29%

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Use of platelets in haematology

2,125 cases from 174 hospitals, median
13/site

- 55% received platelets for prophylaxis
- 26% had bleeding
- 12% were given prior to invasive procedure
- 7% - no reason for platelet transfusion was stated

**National Comparative Audit of the use of Platelets****Use of platelets in haematology**

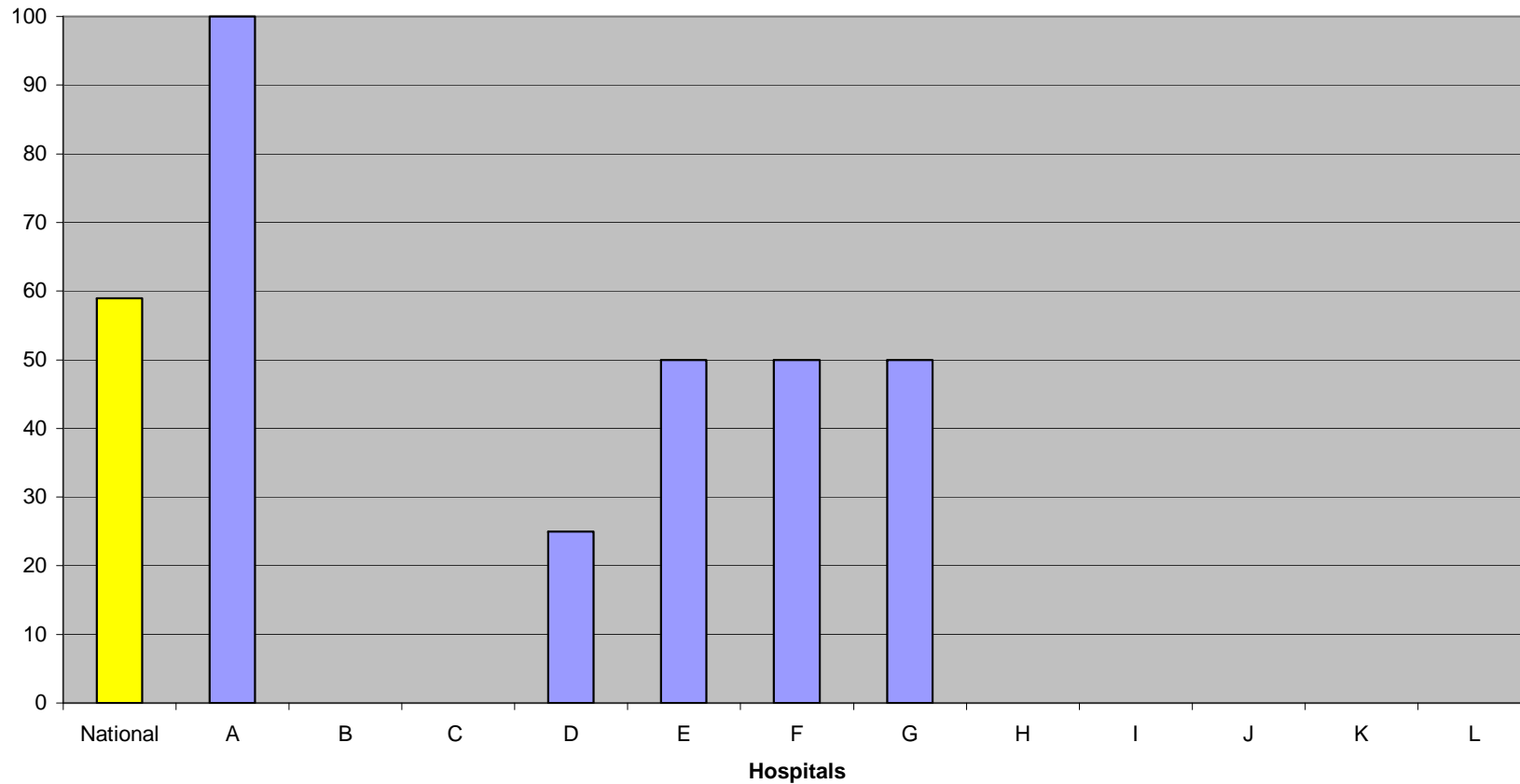
- Standard: Threshold for prophylactic transfusion is a platelet count $\leq 10 \times 10^9/L$, or $< 20 \times 10^9/L$ if sepsis (on i.v. antibiotics or antifungal therapy), APML or abnormal coagulation (BCSH, 2003)



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Use of platelets in haematology

Patients who received platelets for prophylaxis (without sepsis, APML or abnormal coagulation), and had a pre-transfusion count of $<10 \times 10^9/L$

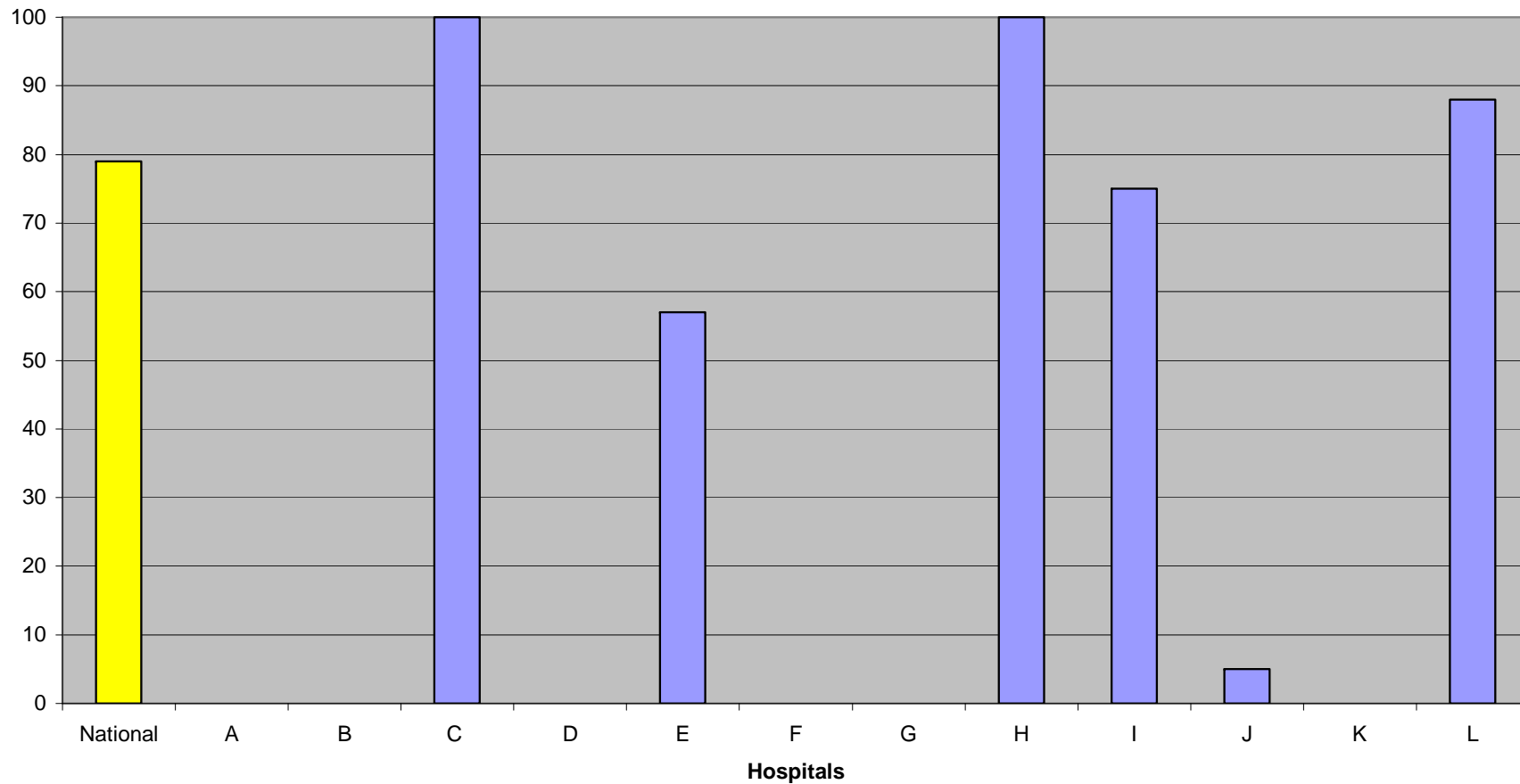




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Use of platelets in haematology

Patients who received platelets for prophylaxis (with sepsis, APML or abnormal coagulation) and had a pre-transfusion platelet count of $<20 \times 10^9/L$



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Use of platelets in haematology

Standard: Platelet transfusion is not necessary for bone marrow biopsy (BCSH, 2003)

Practice: Of 45 patients undergoing bone marrow biopsy, **37 (82%) unnecessarily** received prophylactic platelet transfusion (median pre-transfusion platelet count $13 \times 10^9/L$)

	<i>Number of patients in hospitals in East Midlands RTC</i>											
National	A	B	C	D	E	F	G	H	I	J	K	L
37	1	0	1	0	0	0	1	1	0	0	0	0

Standard: If a platelet transfusion is given to raise platelet count before an invasive procedure:

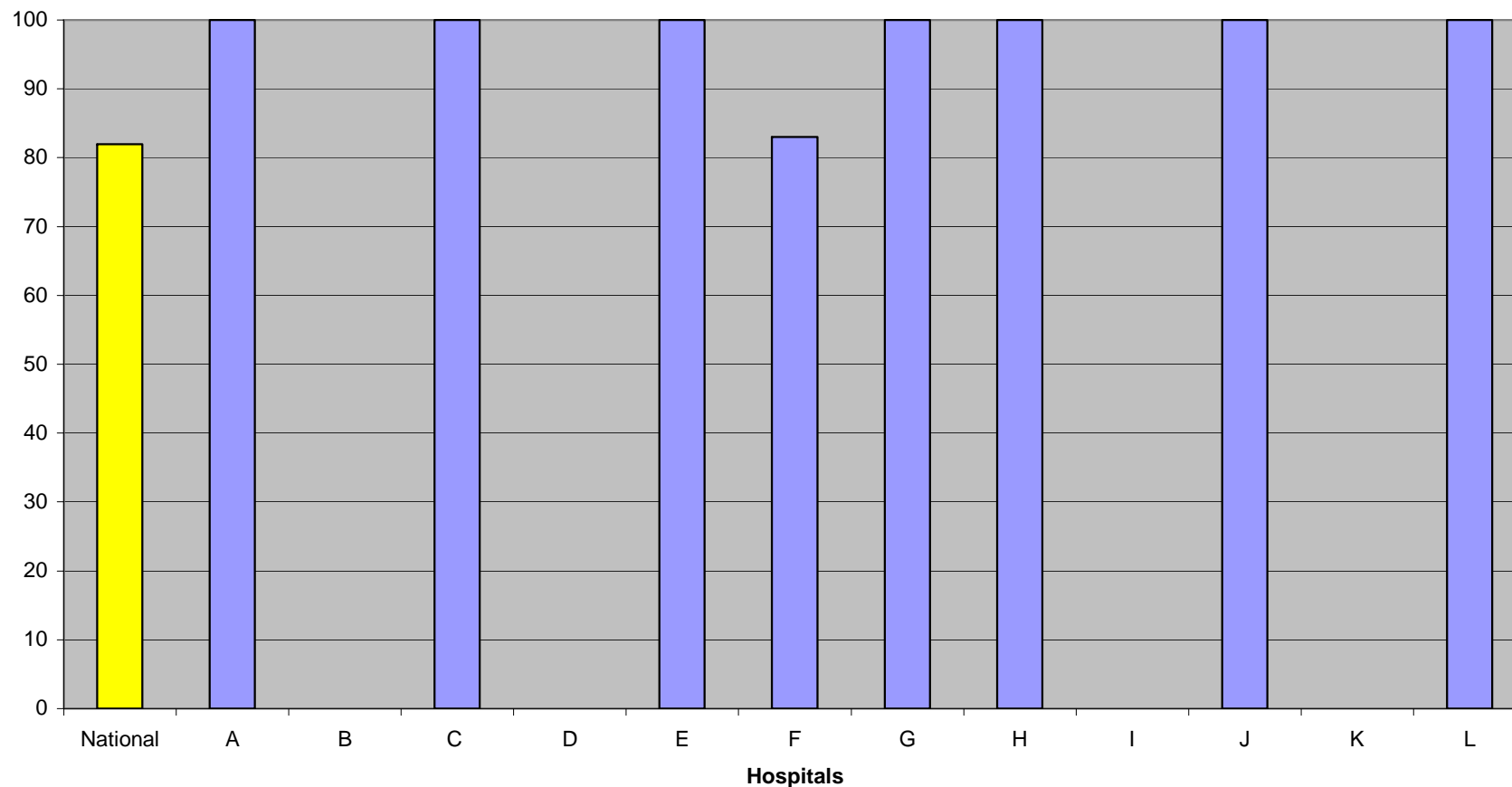
- pre-transfusion count should be $<50 \times 10^9/L$, and
- post-transfusion count should be checked before the procedure (BCSH, 2003)



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Use of platelets in haematology

% Patients given a platelet transfusion prior to an invasive procedure when their platelet count was $<50 \times 10^9/L$



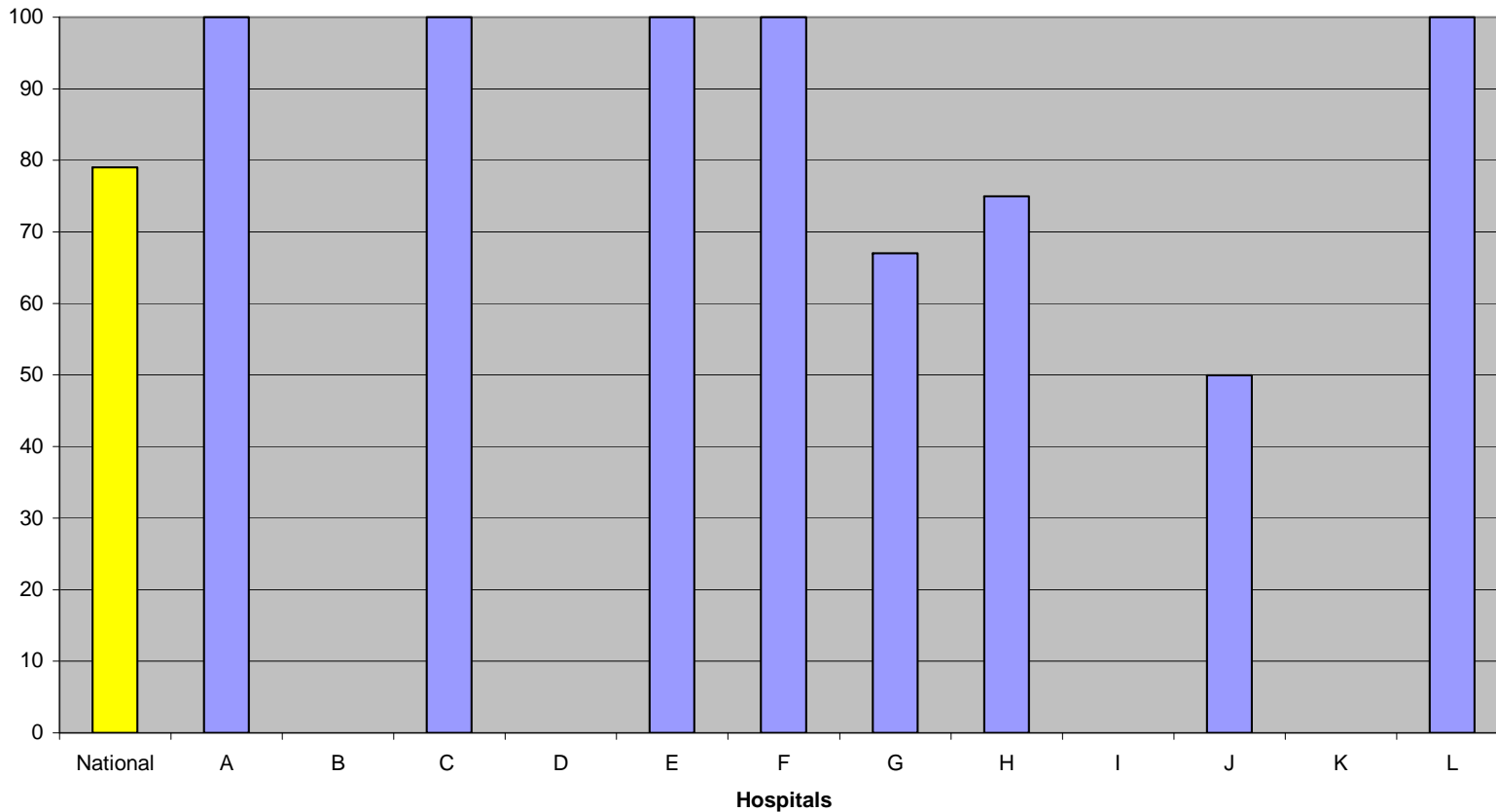


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Use of platelets in haematology

Post transfusion, pre-procedure platelet count

% Patients having a post-transfusion platelet count before the procedure



361 cases from 39 hospitals, median 10/site

- 87% involved cardiopulmonary bypass
- 47% primary CABG; 6% second or subsequent CABG; 27% AVR
- The platelet transfusion was given on the day of the procedure in 78% of those receiving platelets



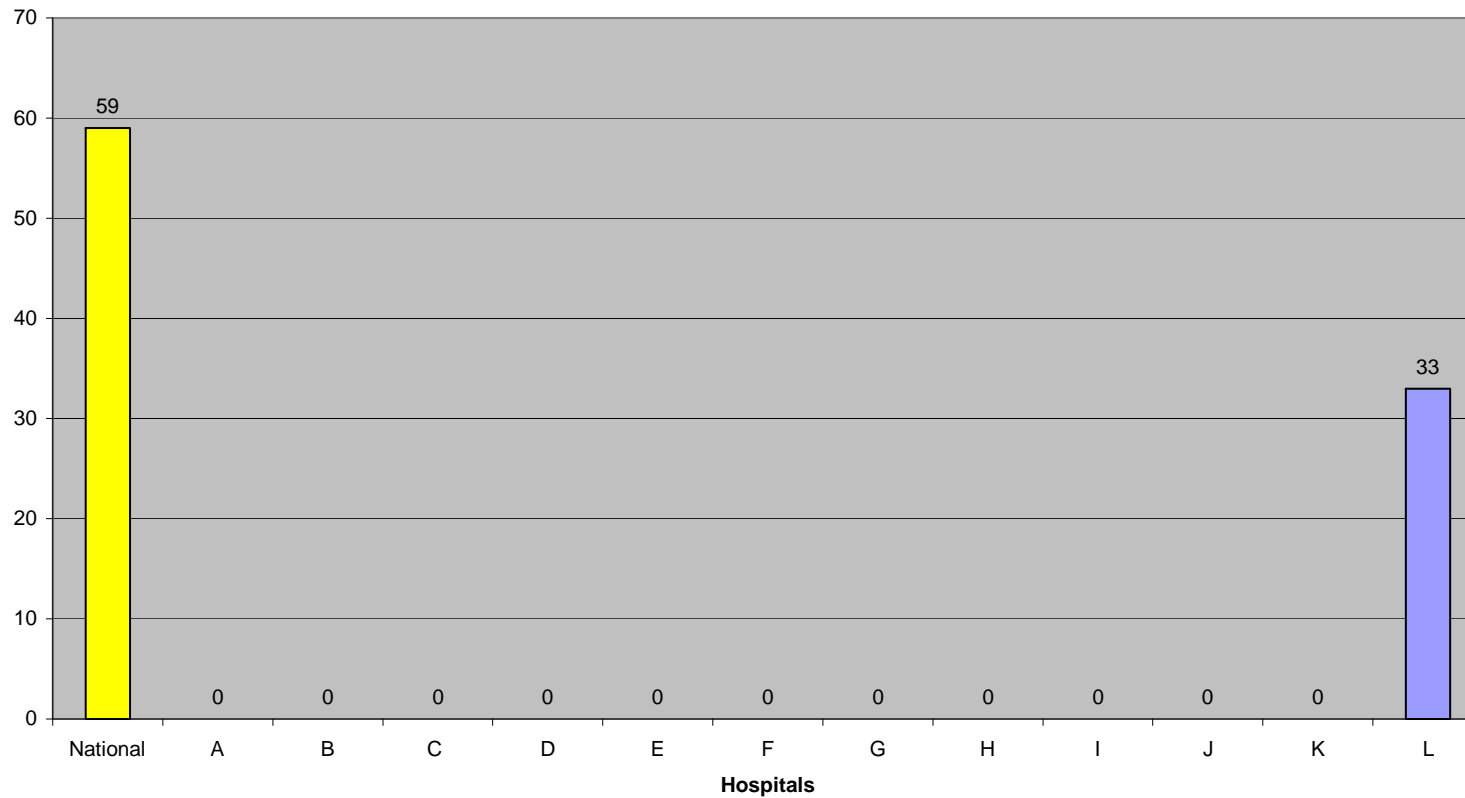
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Use of platelets in cardiac surgery

Standard: For procedures involving bypass, platelets should be transfused only if there is uncontrolled, non-surgical, bleeding (BCSH, 2003)

Practice: Nationally, **59%** of transfusions used to control bleeding

% Patients given platelets only if there is uncontrolled, non-surgical bleeding





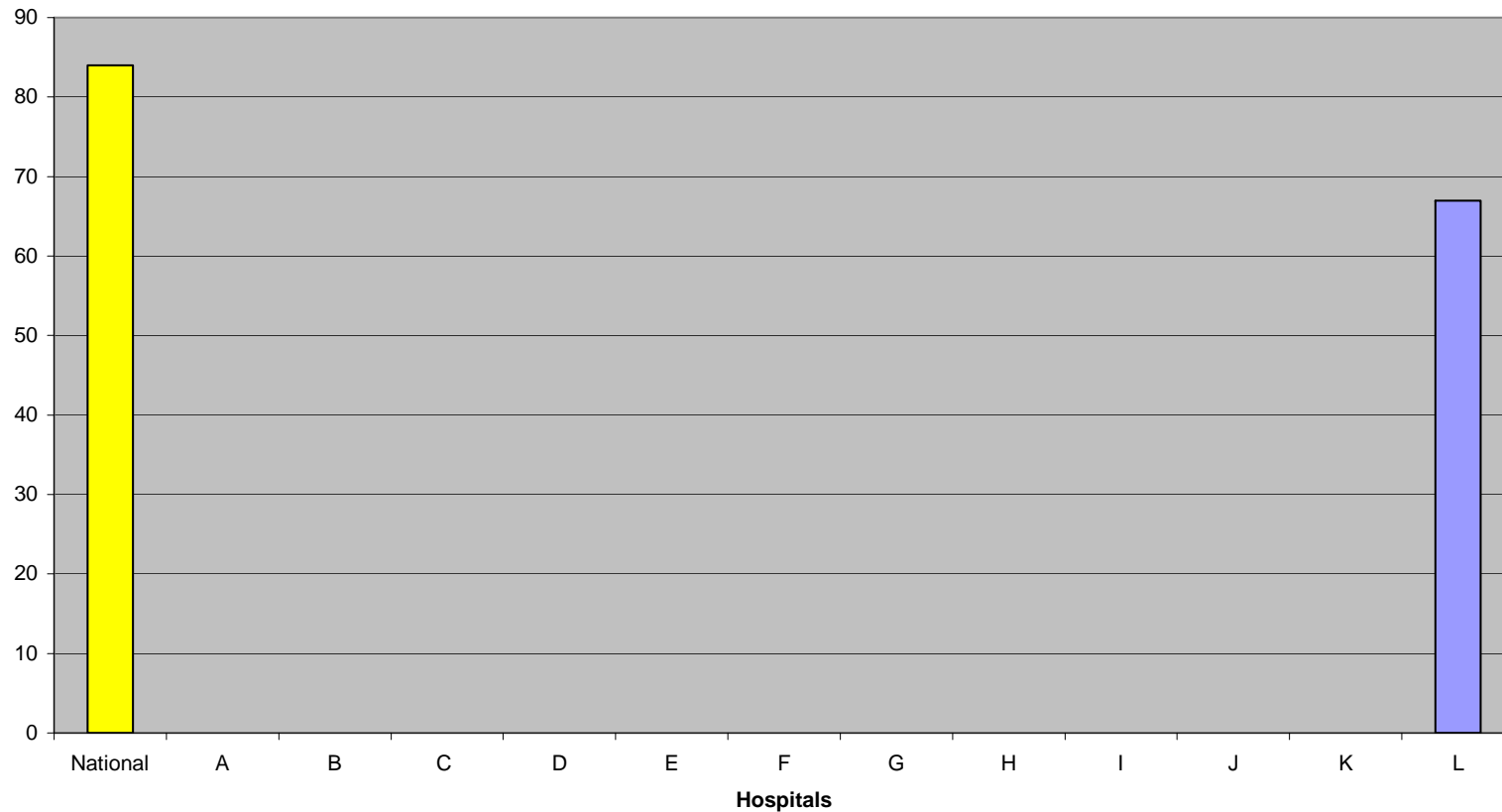
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Use of platelets in cardiac surgery

Standard: In patients undergoing cardiopulmonary bypass, platelet count should be checked before transfusion (BCSH, 2003)

Practice: Pre-transfusion platelet count checked in 254/303 (84%) cases

% Patients having platelet count checked before transfusion in cardiopulmonary bypass



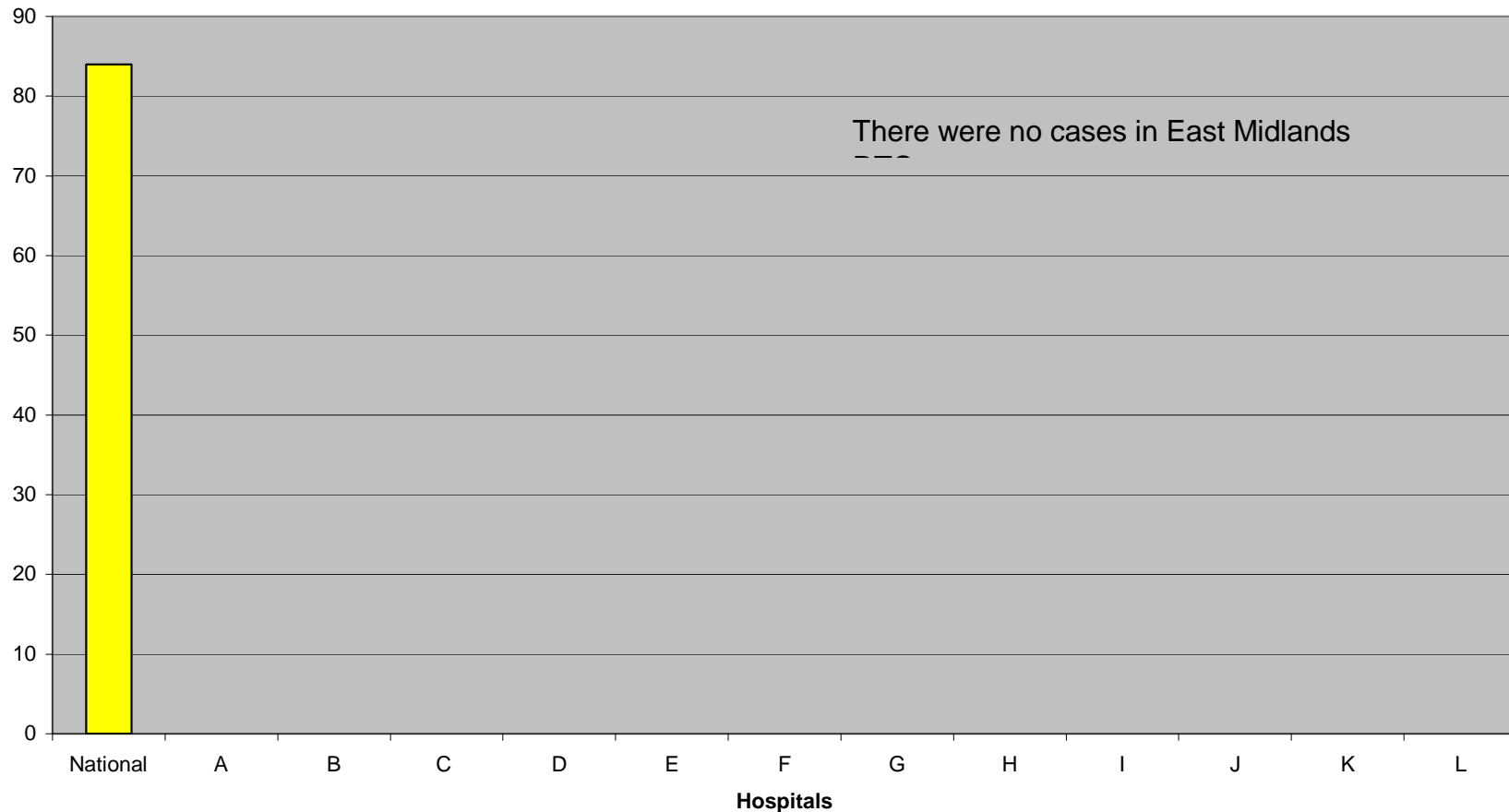


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Use of platelets in cardiac surgery

Pre-transfusion platelet count for non-CPB was checked in (38/46) **83%**

Checking pre-transfusion platelet count



912 cases from 153 hospitals, median 6/site

- 92% were adults
- reason for admission to ITU (critical care):-
 - post-operative complications (39%)
 - sepsis (27%)
 - respiratory failure 17%)
 - trauma (8%)



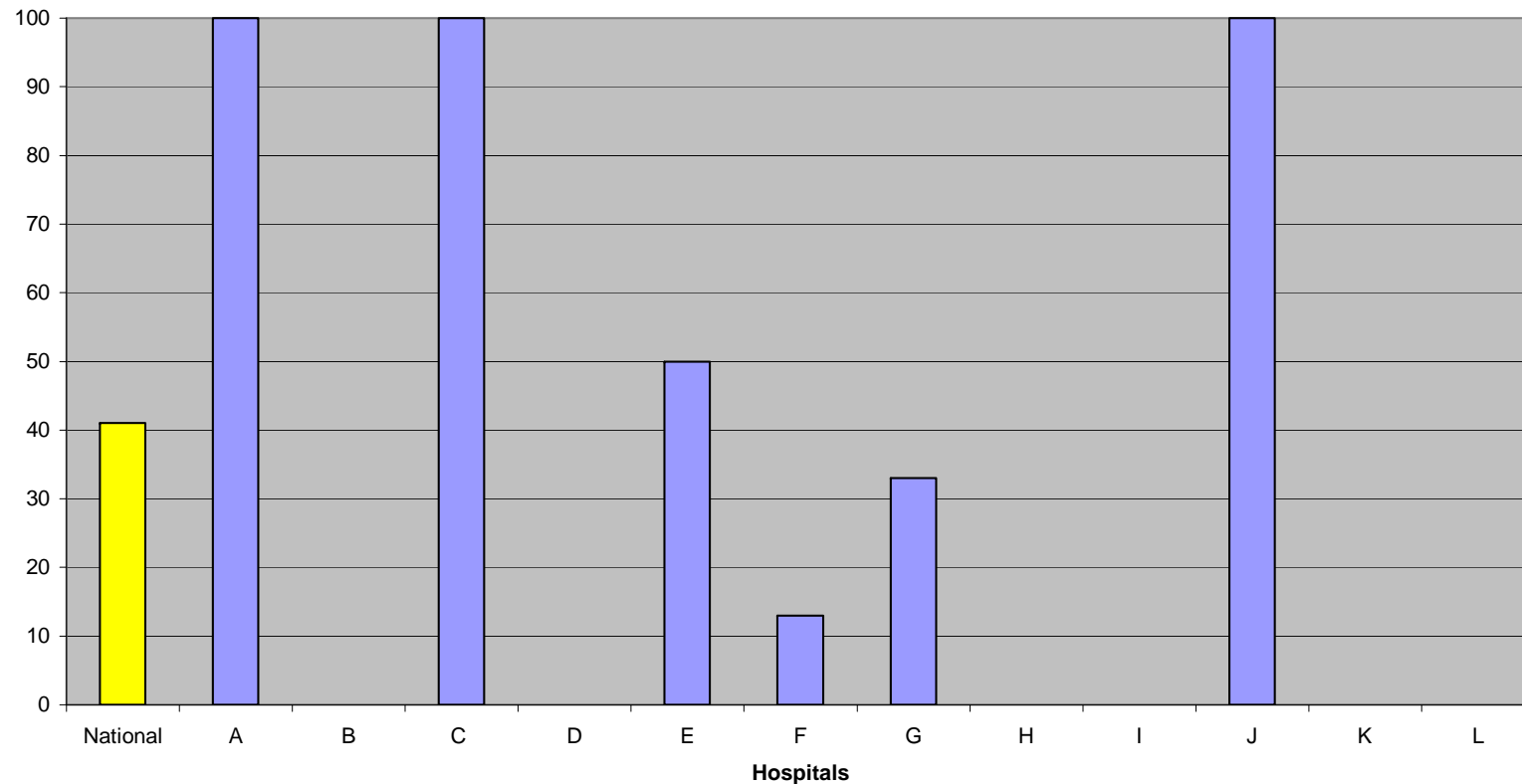
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Use of platelets in ITU (critical care)

Standard: Routine prophylactic platelet transfusion should not be given unless the pre-transfusion count is $<30 \times 10^9/L$

Practice: Excluding those patients with bleeding or a planned invasive procedure, 97/236 (41%) had a pre-transfusion platelet count of $<30 \times 10^9/L$.

% Patients with a pre-transfusion platelet count of $<30 \times 10^9/L$, excluding patients with bleeding or a planned invasive procedure





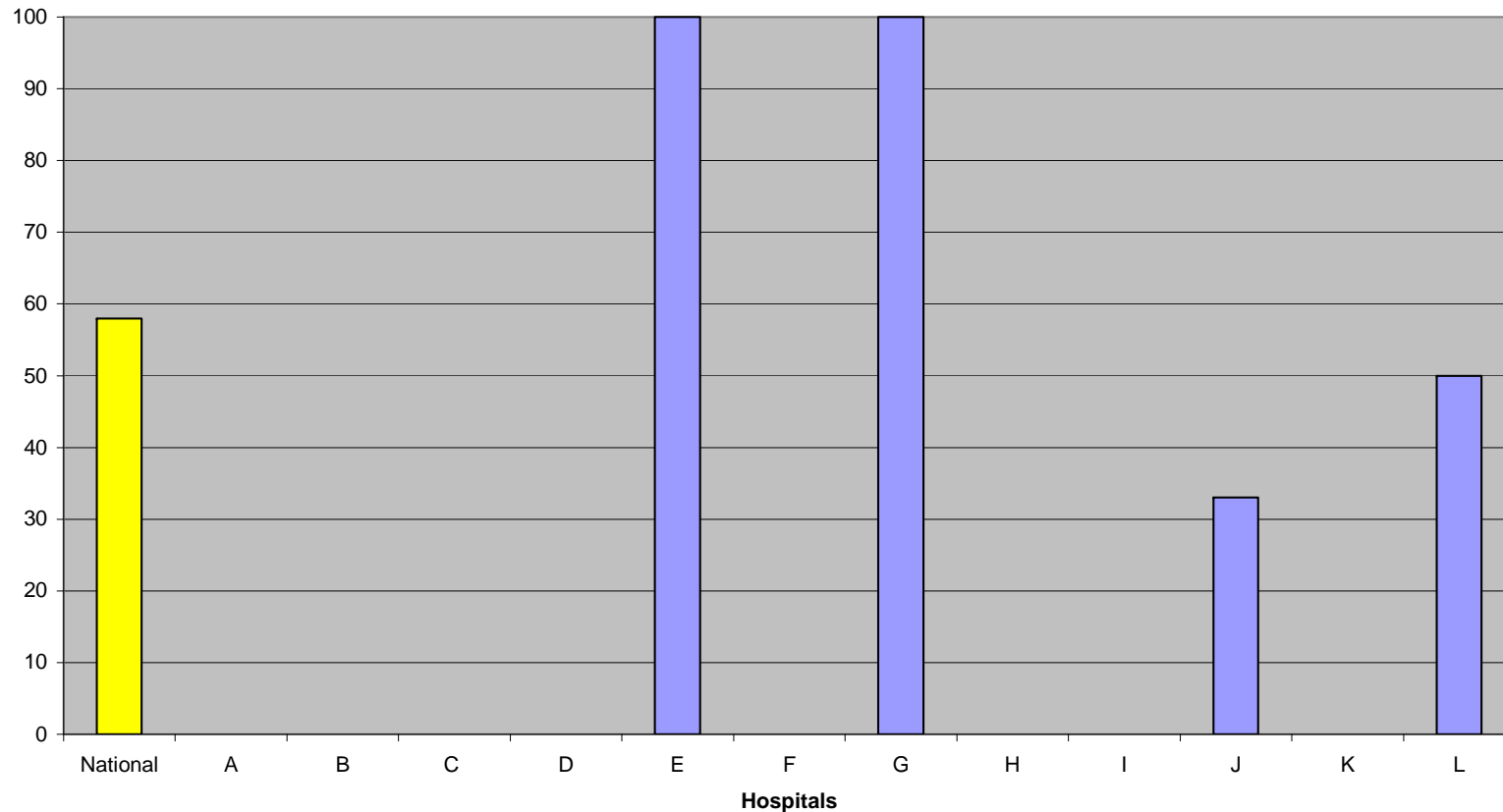
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Use of platelets in ITU (critical care)

Standard: Where platelets given to raise count for an invasive procedure, the pre-transfusion count should be $<50 \times 10^9/L$, and the post-transfusion platelet count should be checked (BCSH, 2003)

Practice: (94/161) **58%** of patients had a pre- transfusion platelet count $<50 \times 10^9/L$ (i.e. complied).

% Patients with a pre-transfusion platelet count of $<50 \times 10^9/L$



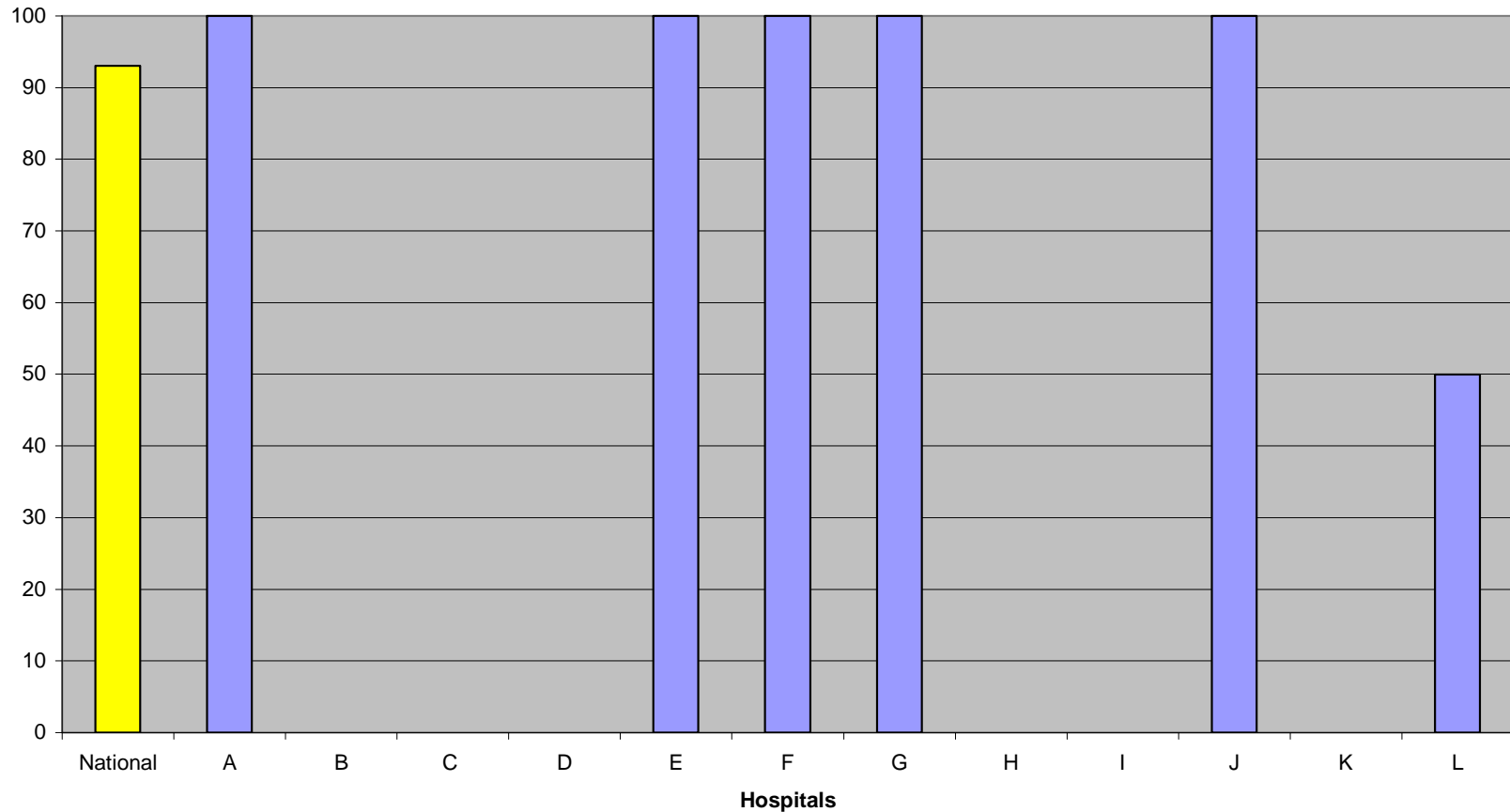


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Use of platelets in ITU (critical care)

Practice: (153/165) **93%** had a post-transfusion platelet count checked (i.e. complied).

% Patients having a post-transfusion platelet count checked (i.e. complied)



1023 cases from 164 hospitals, median 5/site

- 84% were adults
- type of patient:-
 - medical (57%)
 - surgical (35%)
 - other e.g. accident & emergency, neonatal (8%)



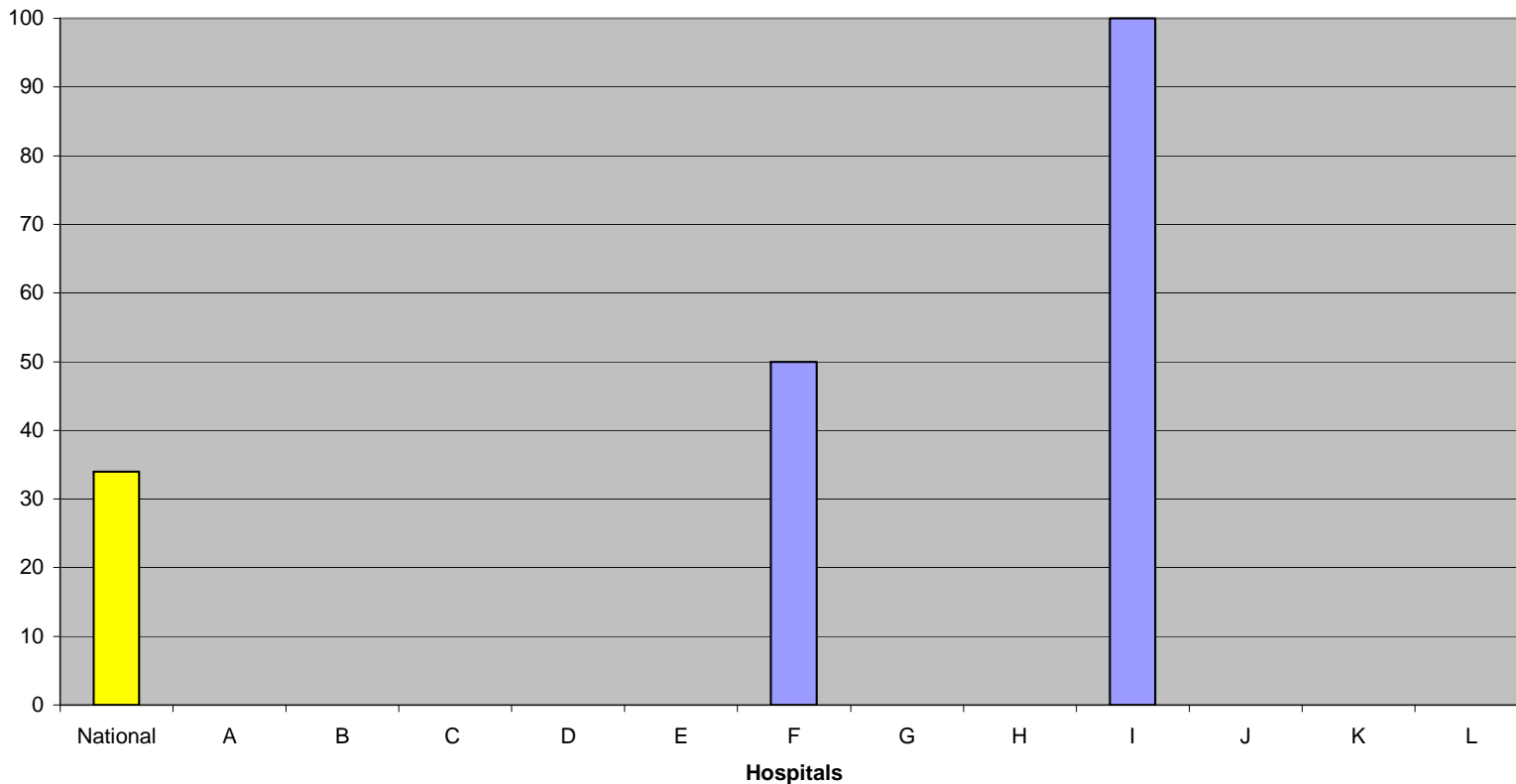
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Use of platelets in Miscellaneous category

Standard: The threshold for routine prophylactic transfusion in medical patients should be $\leq 10 \times 10^9/L$ (BCSH, 2003)

Practice: (54/161) **34%** of medical patients who received prophylactic platelets (in the absence of bleeding, abnormal clotting or a planned invasive procedure) had a pre-transfusion platelet count of $< 10 \times 10^9/L$

% Medical patients who received prophylactic platelets (in the absence of bleeding, abnormal clotting or a planned invasive procedure), having a pre-transfusion platelet count of $< 10 \times 10^9/L$





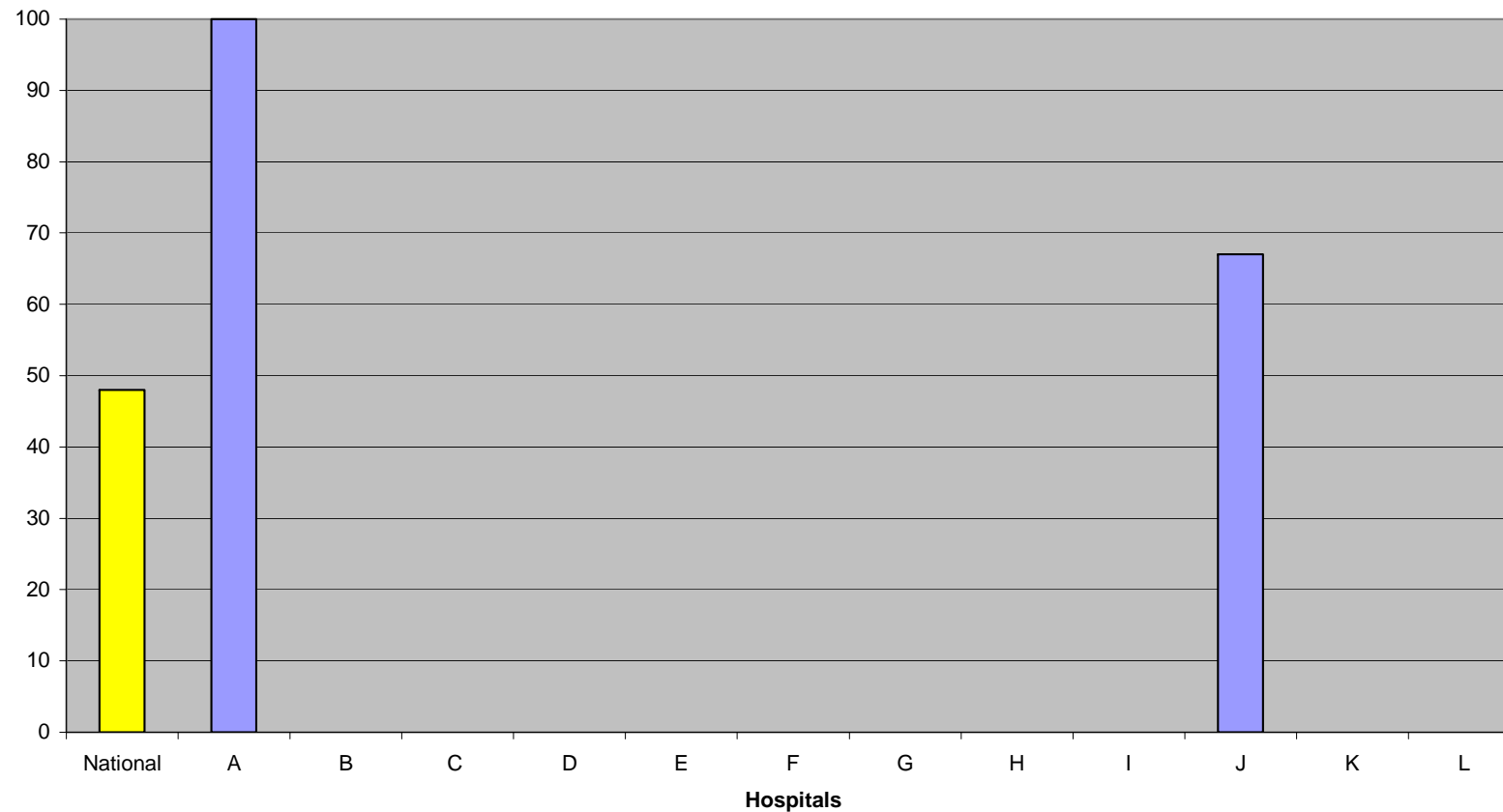
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Use of platelets in Miscellaneous category

Standard: Where platelets given to raise count for an invasive procedure, the pre-transfusion count should be $<50 \times 10^9/L$, and the post-transfusion platelet count should be checked. (BCSH, 2003)

Practice: (63/130) **48%** of cases in this category had a pre- transfusion platelet count $<50 \times 10^9/L$ i.e. complied.

% cases in this category who had a pre-transfusion platelet count of $<50 \times 10^9/L$



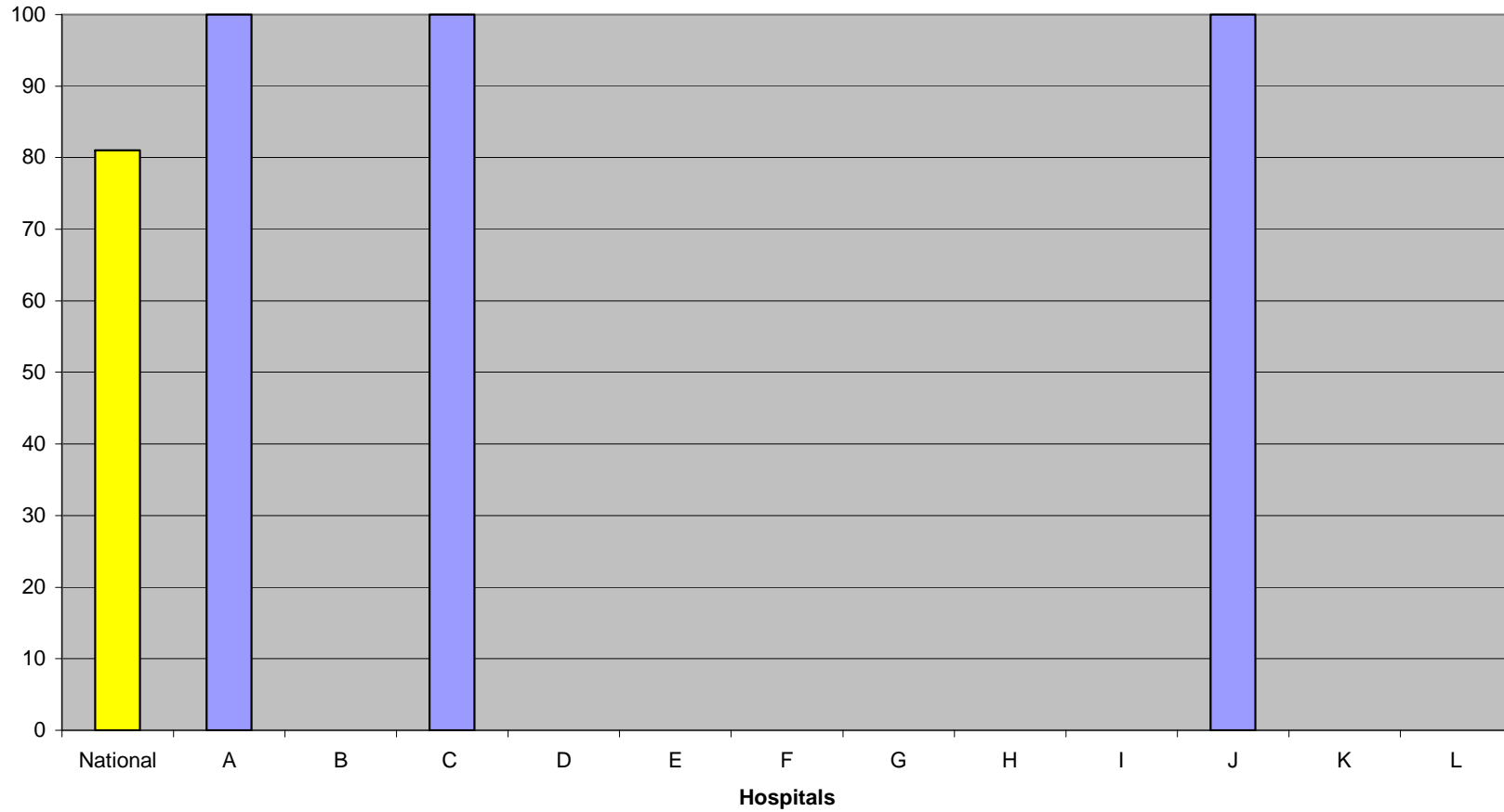


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Use of platelets in Miscellaneous category

(123/152) 81% had a post-transfusion platelet count checked i.e. complied.

% Patients having a post-transfusion platelet count checked



- Significant lack of compliance with BCSH guidelines
- Majority of non-compliant transfusions in haematology patients were in the prophylactic category
- Appropriate use should reduce healthcare costs, improve platelet availability, and reduce risks to patients

- Develop local guidelines for all clinical areas using platelet transfusion
- Develop more comprehensive national guidelines for cardiac surgery and critical care
- Regular (annual) local audits
- Education of all prescribers
- Consider point of care testing to help rationalise use of blood components in patients who are bleeding
- Further clinical trials are needed
- Re-audit in about 3 years

- **Project team:** Hafiz Qureshi, Derek Lowe, Phil Dobson, John Grant-Casey, Elaine Parris, David Dalton, Kathleen Hickling, Fiona Waller
- Hospital staff who collected the audit data

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