

NBS Platelet Management

May 2004

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National Stock Manager

Platelet Management - Prior to Aug 2002

Stock levels not agreed in all centres/nationally

No understanding of national status

Lack of control

Number in stock

Group mix

No prior notice of stock shortages

Reactive

Supply Continuity Failures (Bank Holidays)

Easter 2001

Xmas 2001

Easter 2002

Golden Jubilee 2002

How Platelet Management Developed

Setting Local (& National) Stock Levels

- Historical data
- % activity
- Negotiation

Establishing Control

- Standing orders (to support centres with low capacity)
- Responding to shortages quickly
- Apheresis & PTI activity (Group Mix)
- Improve service (especially Bank Holidays)
- Supply Continuity Group - Cross-functional (PTI, PCS, SD)

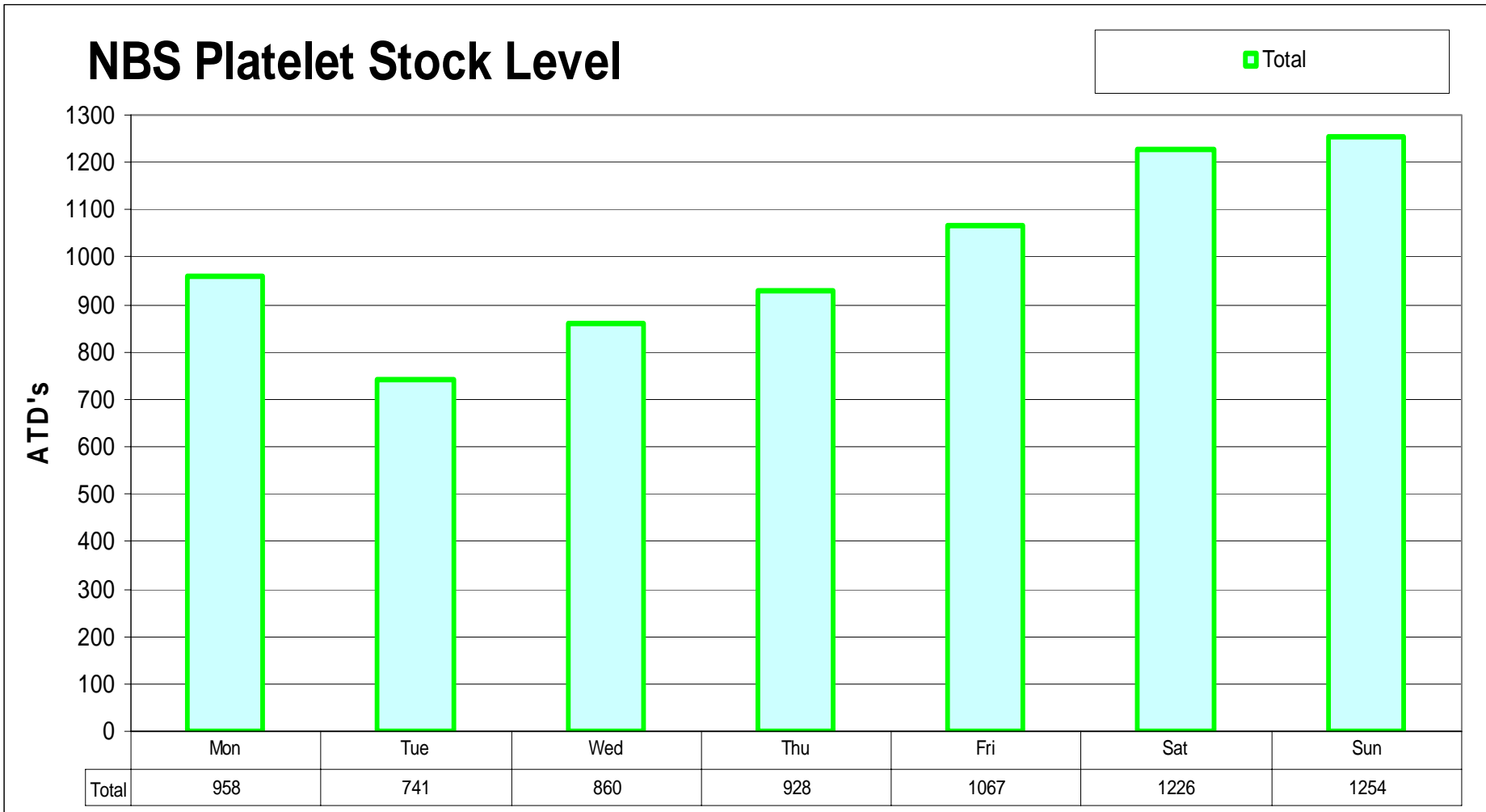
Setting Stock Levels

Assumption 1

That the most appropriate method of setting the national stock level is to use historical stock levels.

This is because the actual historic stock levels are the product of experience, local and national practices.

NBS Platelet Stock Level



Local Stock Levels

Assumption 2

That each centre should have a percentage of national stock related to percentage demand.

i.e. Liverpool issue 5.6% of national issues, so should they hold 5.6% national stocks ?

Is this appropriate for all centres?

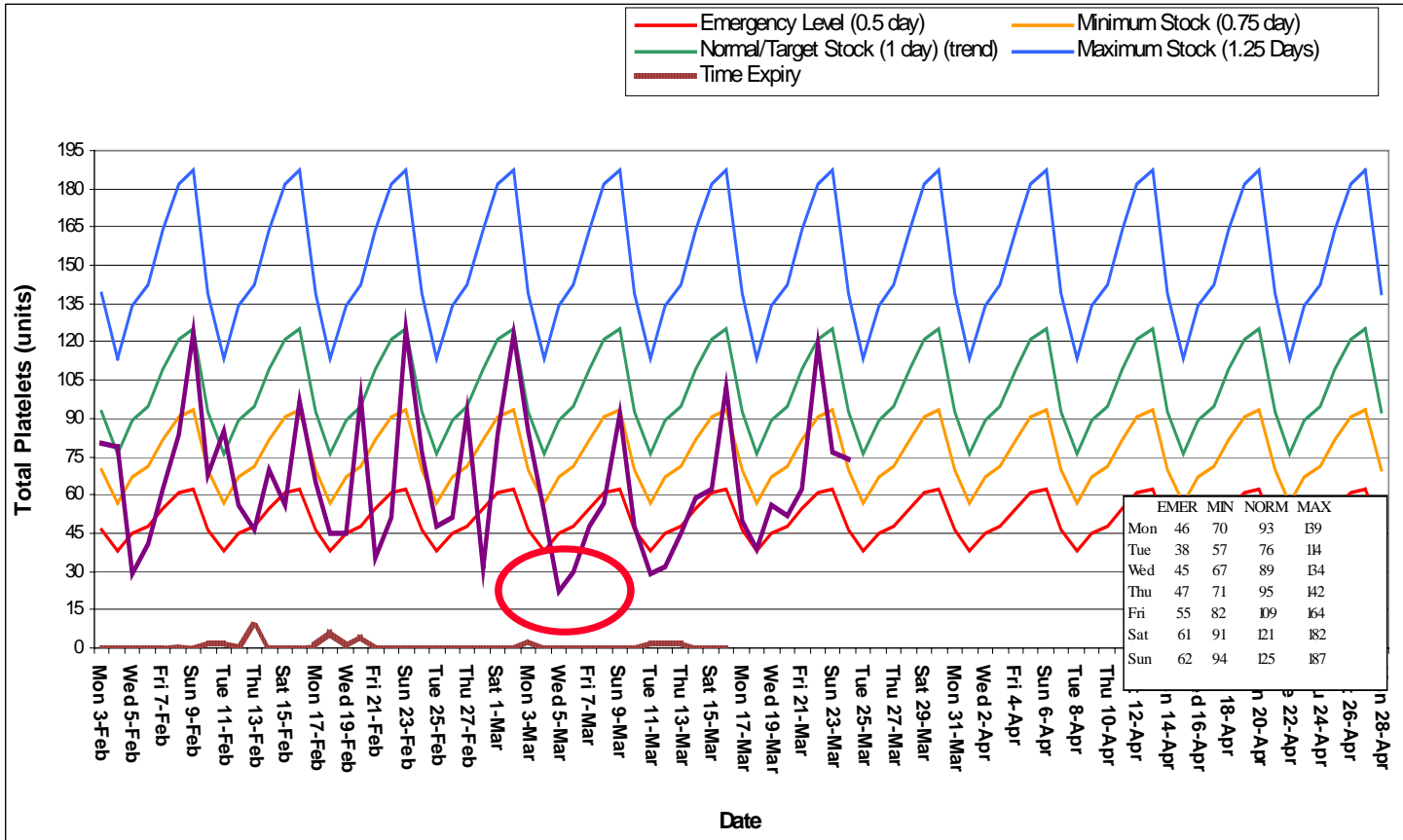
What about geographical location or site capabilities?

E.g. Should we keep more stock in geographically isolated centres?

If this assumption were valid, each local profile mirrors the national profile

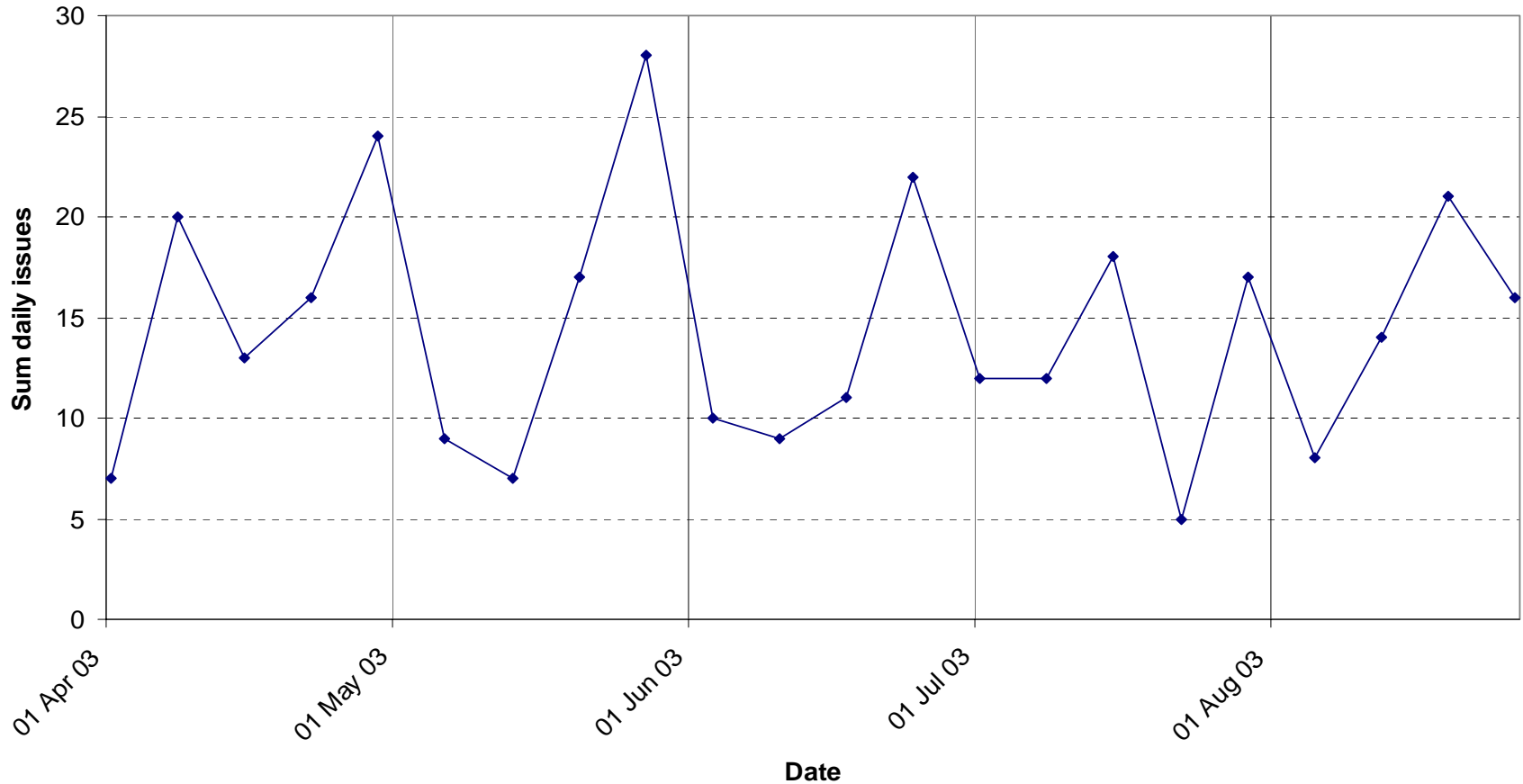
Local Stock Levels

Centre D



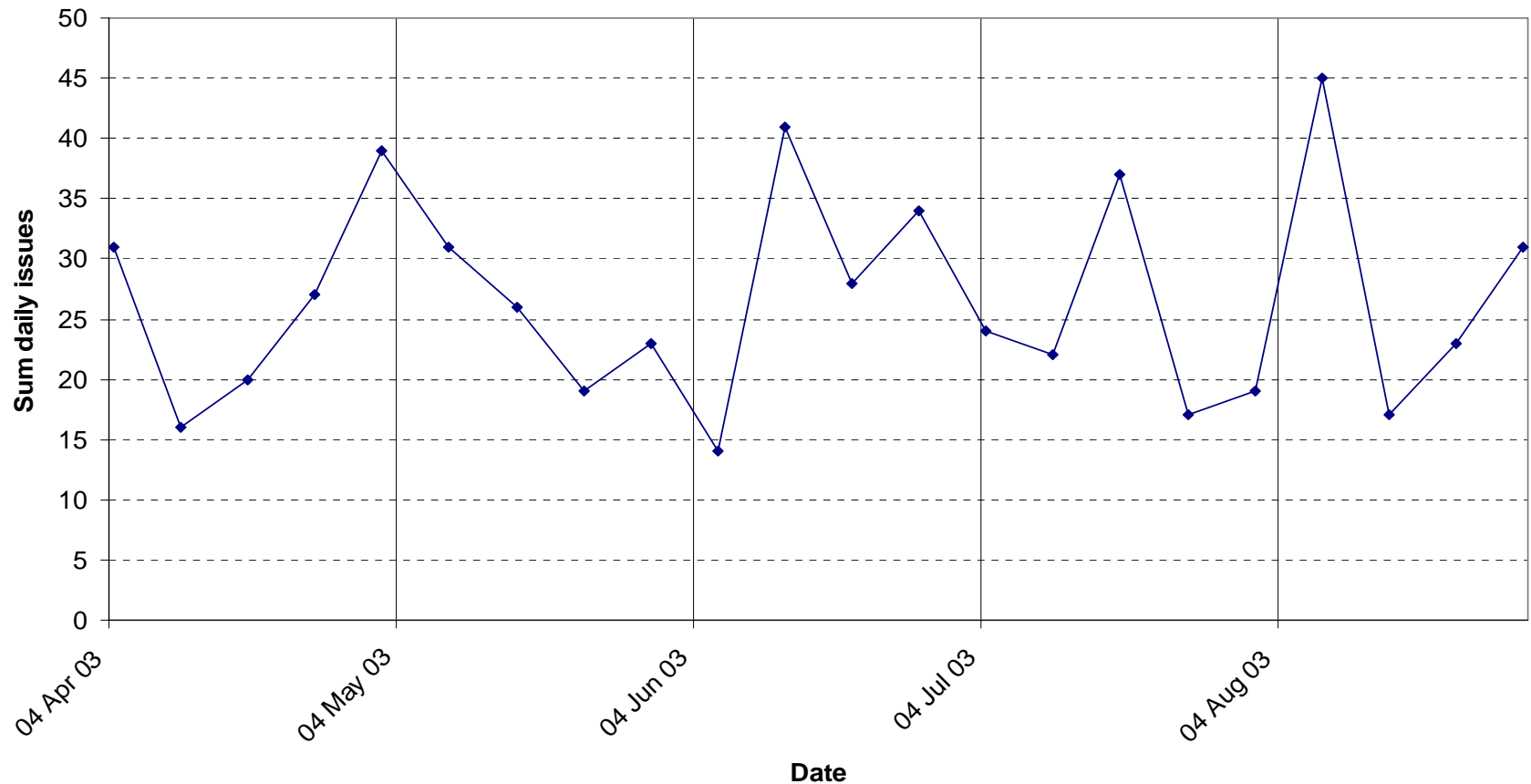
Dynamic nature of platelet demand

Sum daily Total issues from Bristol Centre
Day Filter = Tuesday



Dynamic nature of platelet demand

Sum daily Total issues from Tooting Centre
Day Filter = Friday



Production Capacity

Processing Capabilities

Supply

- Demographics

Platelet Standing Orders

Brentwood to Colindale

	O Pos.	A Pos.	B Pos.	O Neg.	A Neg.	B Neg.	TOTAL	Units Bled On
Monday	0	0	2	0	0	1	3	Friday
Wednesday	0	0	2	0	0	1	3	Monday
Thursday	0	0	2	0	0	1	3	Tuesday
Friday	0	0	2	0	0	1	3	Wednesday
TOTAL	0	0	8	0	0	4	12	

Brentwood to Tooting

	O Pos.	A Pos.	B Pos.	O Neg.	A Neg.	B Neg.	TOTAL	Units Bled On
Monday	11	14	2	2	0	0	29	Friday
Wednesday	8	7	2	2	1	0	21	Monday
Thursday	8	11	2	2	1	0	24	Tuesday
Friday	7	7	0	1	0	0	15	Wednesday
Sunday	14	14	4	4	3	1	39	Thursday
TOTAL	49	53	10	11	6	1	129	

Bristol to Birmingham

	O Pos.	A Pos.	B Pos.	O Neg.	A Neg.	B Neg.	TOTAL	Units Bled On
Monday	8	4	0	1	1	0	14	Monday
Wednesday	6	2	0	2	1	0	10	Tuesday
Thursday	2	2	0	1		0	5	Wednesday
TOTAL	16	8	0	4	2	0	29	

Southampton to Birmingham

	O Pos.	A Pos.	B Pos.	O Neg.	A Neg.	B Neg.	TOTAL	Units Bled On
Monday	4	4	0	2	1	0	11	Monday
Wednesday	2	2	0	1	1	0	6	Tuesday
Thursday	2	1	0	1		0	4	Wednesday
TOTAL	8	7	0	4	2	0	21	

Why do shortages occur?

Imbalance between supply & demand

Unusual demand

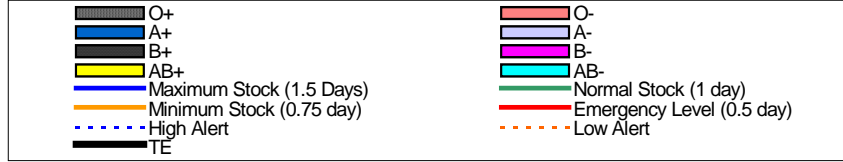
Change in Collection /Apheresis plans

Quality Incidents

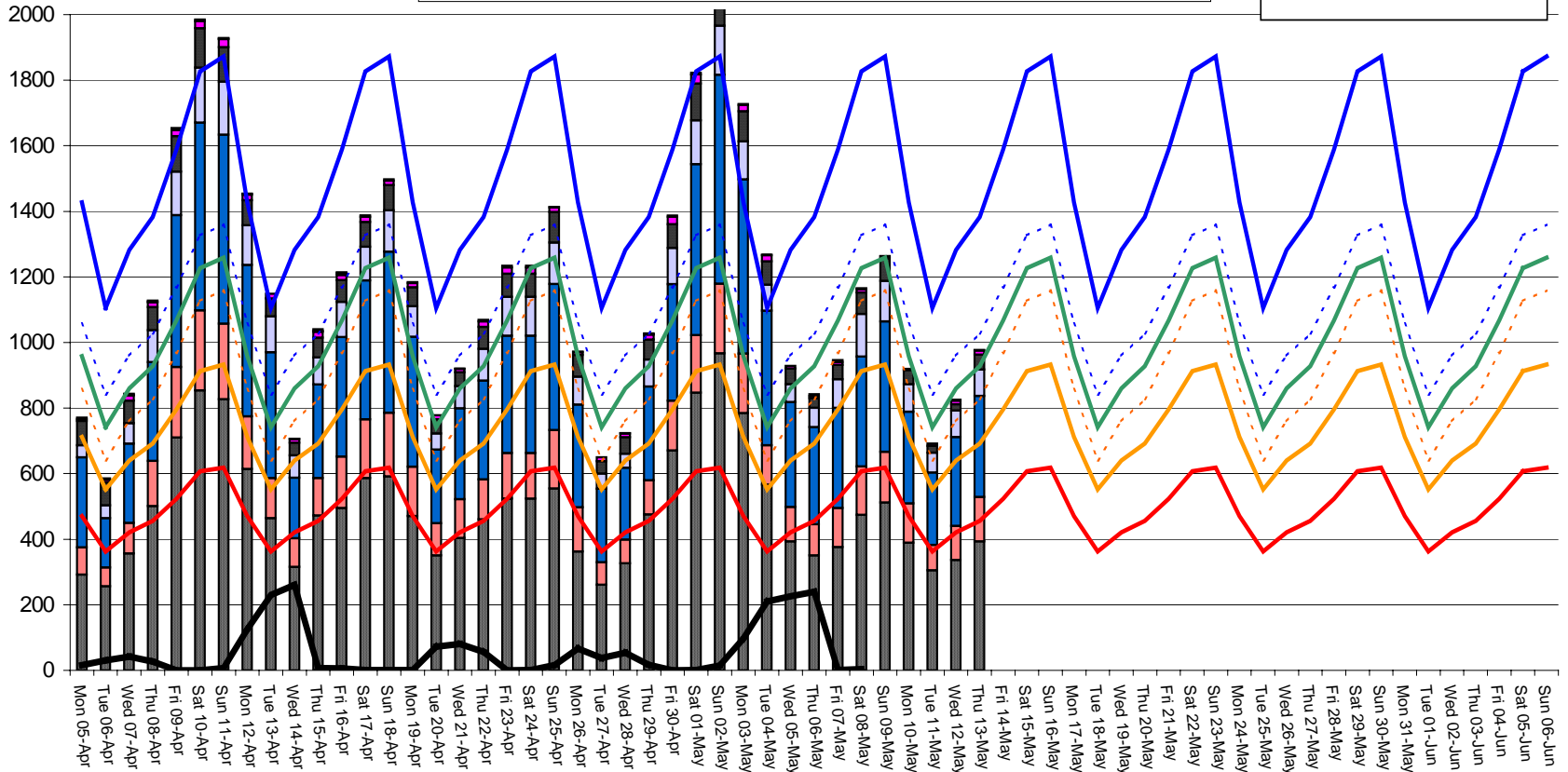
etc, etc

NBS Platelet Stock Levels

Total Platelets - Stock Levels



	EMER	MIN	NORM	MAX
Mon	470	712	958	1427
Tue	363	552	741	1105
Wed	421	640	860	1282
Thu	456	692	928	1383
Fri	523	796	1067	1589
Sat	607	913	1227	1827
Sun	618	933	1259	1872



Ways of addressing NBS shortages

Standing Orders

- To support sites with insufficient capacity

Redistribution of Stock

Improving group mix

- Apheresis targets
- Apheresis collection predictions used in PTI planning

Trigger Level 100 units below normal stock level

- Increase Production
 - Locally
 - Nationally

2 ways of addressing NBS shortages (100 units from normal)

‘Generic’ method

- Issue instruction to all centres to increase production
 - National awareness
 - Speed
 - The supplying site was left with stock (& TE)

‘Specific’ method (used since 11th Sep 03)

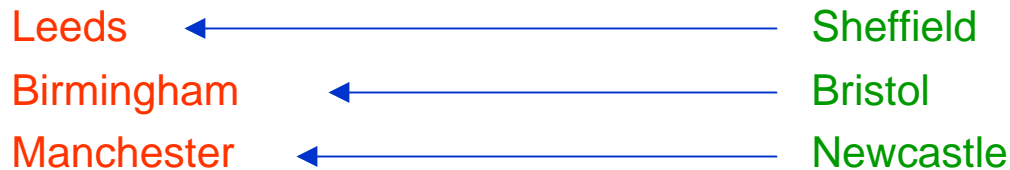
- Identifying centres which are particularly low
- ‘Pairing’ them with a site that usually has excess capacity
- Communicate when stocks return to normal
 - Receiving site ‘negotiate’ appropriate stock increase
 - Supplying site export all excess stock
 - Ownership lies with each centre (Issue Manager)

Addressing Shortages

11th Sep 03 - Nationally 105 units lower than normal

Centres with Low Stocks

Supplying Sites



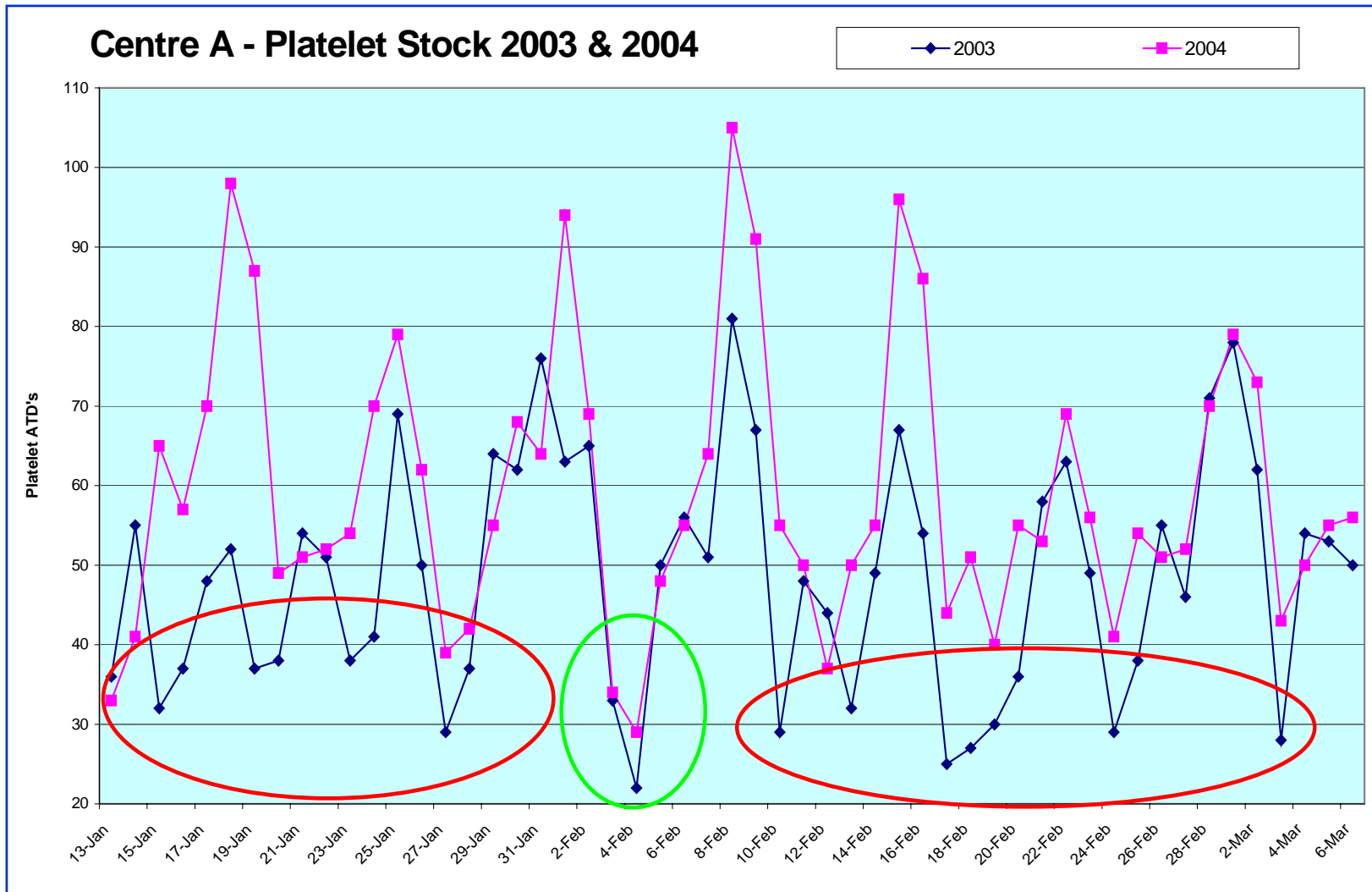
Benefits

- Low centres are supported
- Waste is reduced
- Stock is moved to optimal location

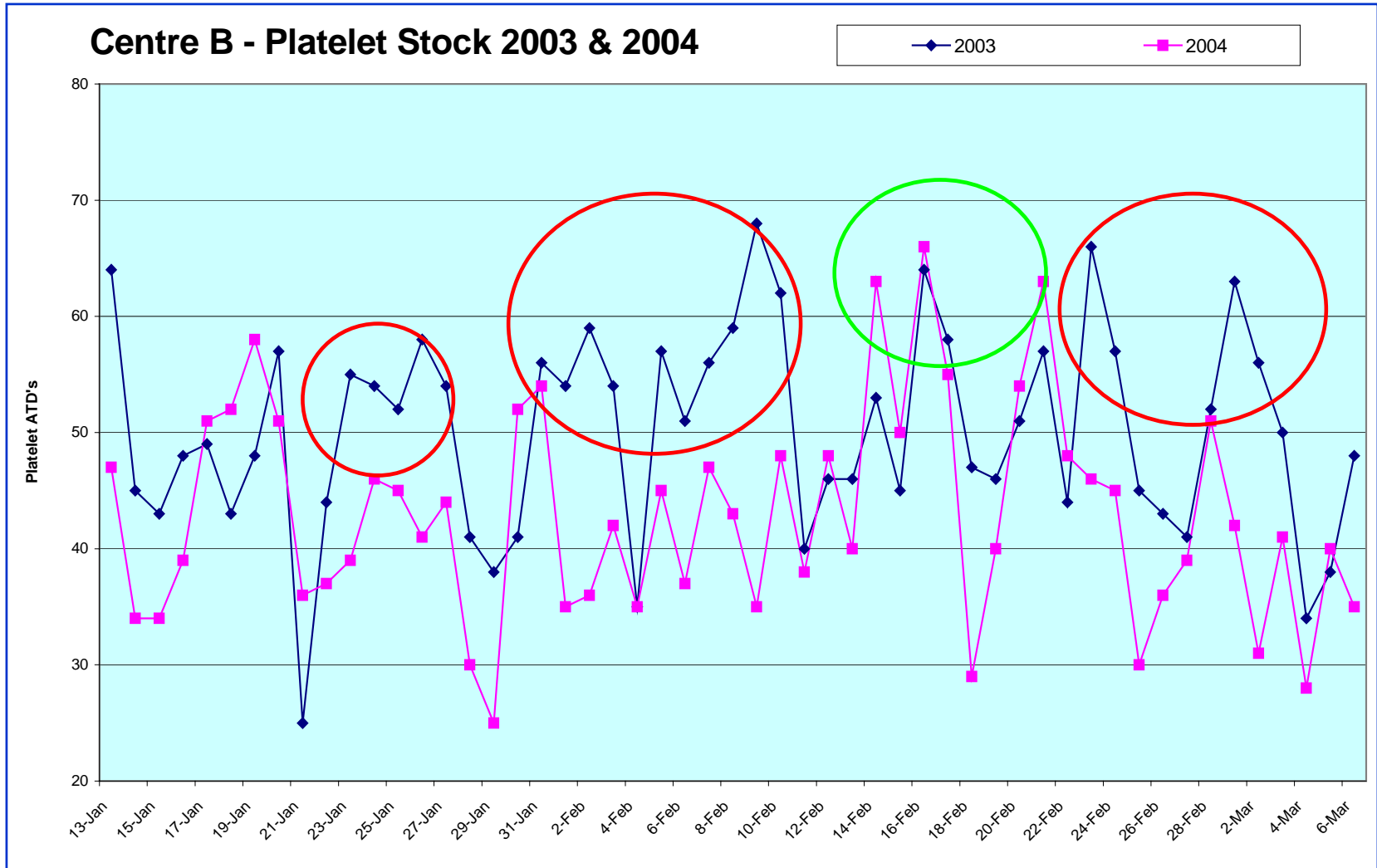
Apheresis 'Wish-List'

Bristol			per day		
daily tgt= 42.7			9	O Pos CMV Pos	
			6	O Pos CMV Neg	
45%	O	19	2	O Neg CMV Pos	
45%	A	19	2	O Neg CMV Neg	
10%	B	4	19.2		
		total	42.7		
>	20%	RH Neg	9	9	A Pos CMV Pos
	80%	RH Pos	34	6	A Pos CMV Neg
		total	42.7	2	A Neg CMV Pos
				2	A Neg CMV Neg
				19.2	
>	40%	CMV Neg	17	2	B Pos CMV Pos
	60%	CMV Pos	26	1	B Pos CMV Neg
		total	42.7	1	B Neg CMV Pos
				0	B Neg CMV Neg
				4.3	
			42.7	Total	

NBS Stock Levels - Centre A



NBS Stock Levels - Centre B



Platelet Management over Bank Holidays

Prior to August Bank Holiday 2002

Regular Stock Shortages
No accurate prediction

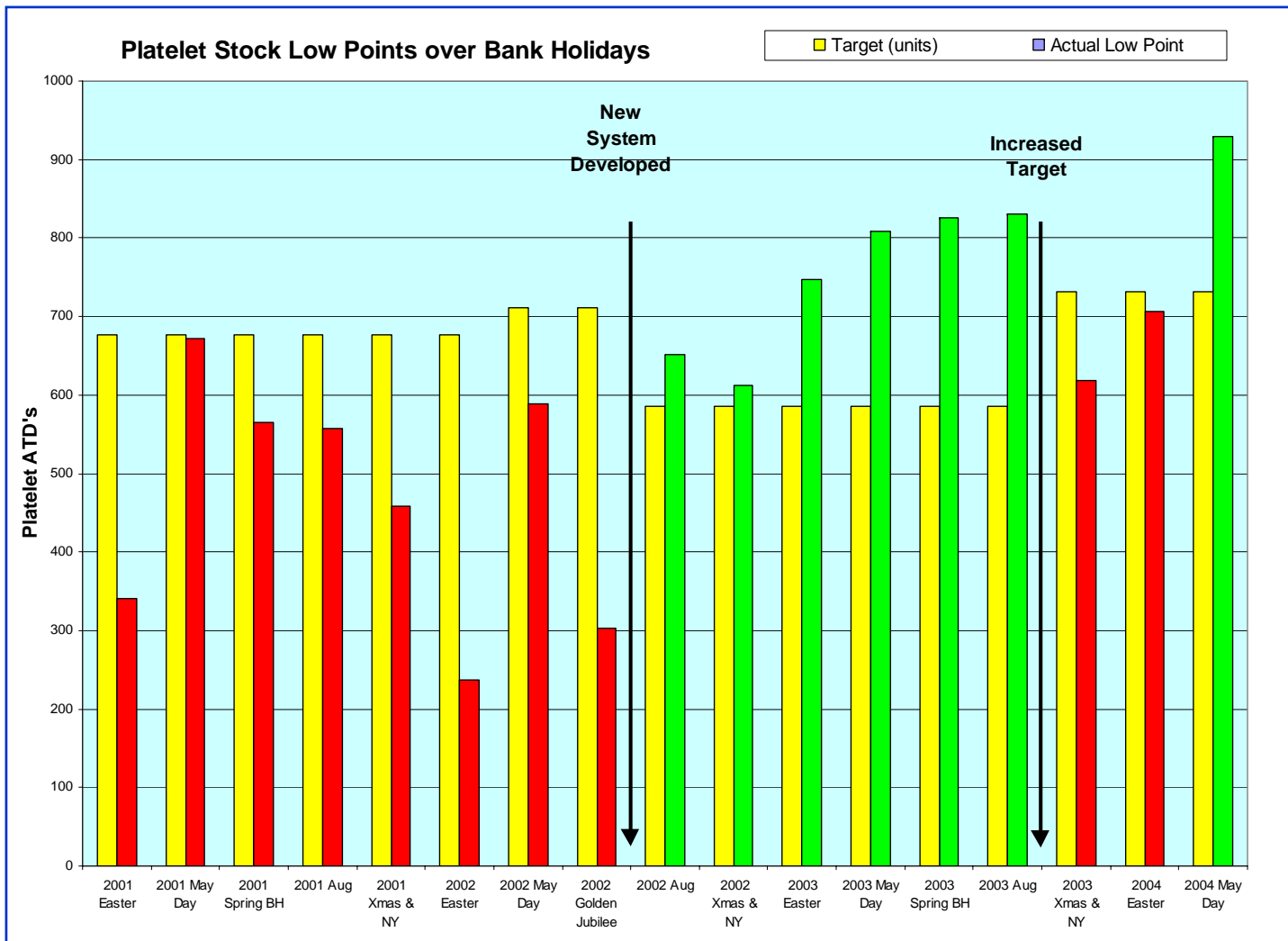
Since August Bank Holiday 2002

Increasing Accuracy of Predictions
Maintained Stocks
Maintained Supply Continuity

BH Platelet Stock Low Points

Bank Holiday	Actual Low Point	Actual Days Cover	Target (Units)	Target (Days Cover)	Date	Comments
2001 Easter	340	0.55	676	1	18th April	?Orders Restricted?
2001 May Day	672	0.99	676	1	9th May	
2001 Spring	565	0.84	676	1	30th May	
2001 August	557	0.83	676	1	29th August	
2001 Xmas & New Year	458	0.68	676	1	28th December	?Orders Restricted?
2002 Easter	237	0.35	676	1	3rd April	Orders Restricted / Liver Transplant Cancelled
2002 May Day	589	0.80	711	1	8th May	
2002 Golden Jubilee	303	0.43	711	1	6th June	Orders Restricted
2002 August	651	1.05	618	1	29th Aug	New planning system developed
2002 Xmas & New Year	612	1.05	585	1	31st Dec	
2003 Easter	748	1.27	585	1	23rd April	
2003 May Day	808	1.38	585	1	8th May	
2003 Spring	826	1.41	585	1	28th May	
2003 August	831	1.42	585	1	28th Aug	
2003 Xmas & New Year	618	1.06	731	1.25	30th Dec	Target increased to include 'buffer'
2004 Easter	706	1.21	731	1.25	14th April	
2004 May Day	929	1.29	731	1.25	5th May	

Bank Holiday Platelets



Variables used in Platelet Model

- Demand - Previous Bank Holidays & Current Trends
- Supply - Detailed Session Plans
- Time Expiry - Previous Bank Holidays & Current Plans

Buffy Coat Conversion Rate

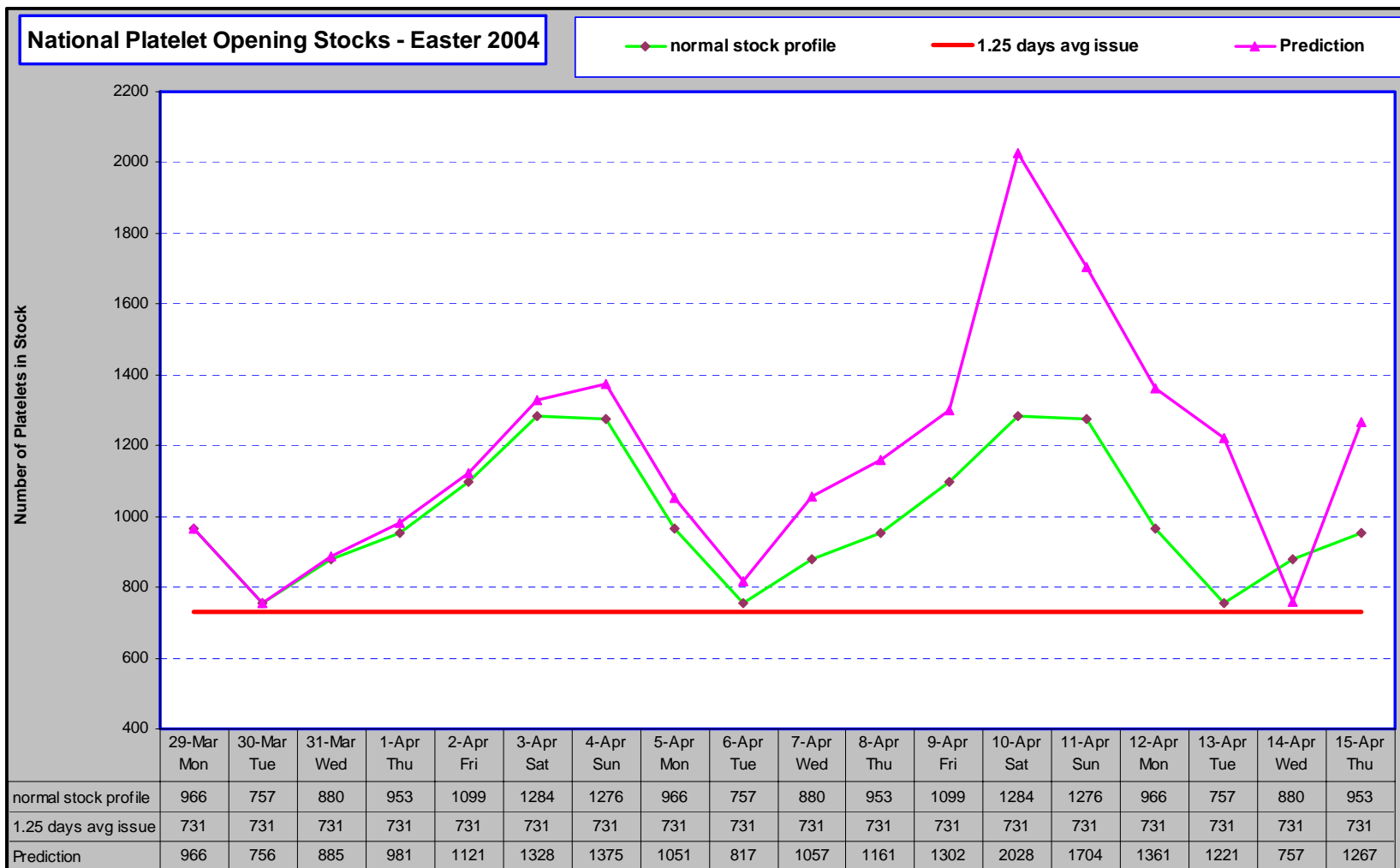
Validation Times

Processing Waste

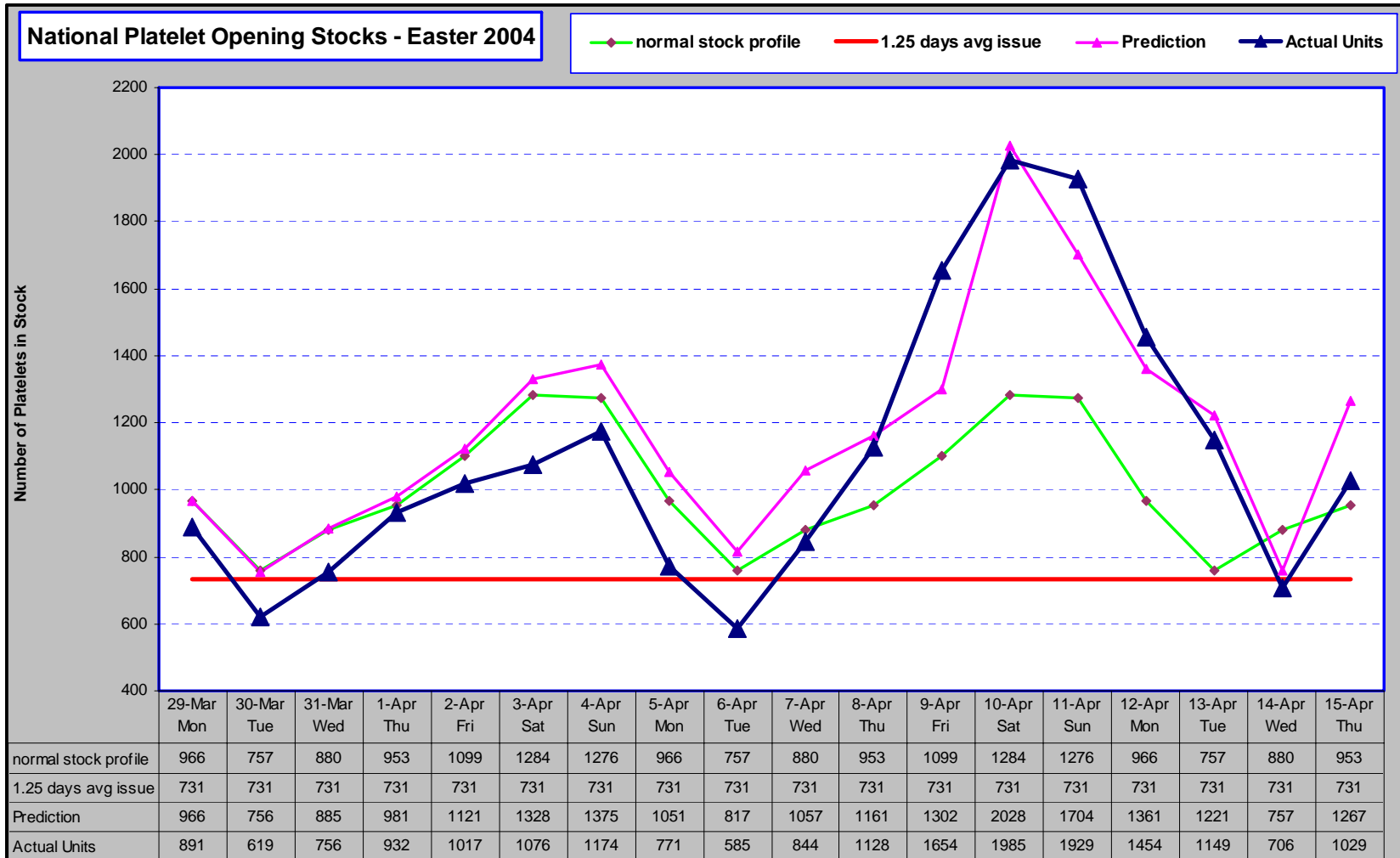
Session & Production Details - Easter 04

session code	panel number	panel name	session end-time	session state	collection region	team code	predicted whole blood donations (in doses)	predicted apheresis collection (in doses)	processing centre	estimation of buffy coats produced (units)	date due to validate (dd/mth)	% of WB turned into buffy coats (expected)	expected Pools (units)
C20716	C118	KIPPAX	1930	F	North & Yorks	CLE	85		Leeds	34	8-Apr	40%	7
C20745	C184	STAMFORD BRIDGE	1930	F	North & Yorks	CL6	85		Leeds	34	8-Apr	40%	7
C21002	C075	GOLCAR	1930	F	North & Yorks	CLW	80		Leeds	32	8-Apr	40%	6
C21073	C049	DRIFFIELD	1930	F	North & Yorks	CL1	95		Leeds	38	8-Apr	40%	8
C21215	C471	HALIFAX	1930	F	North & Yorks	CLB	95		Leeds	38	8-Apr	40%	8
C21674	C980	CENTRAL SCIENCE LAB	1630	F	North & Yorks	CLE	105		Leeds	42	8-Apr	40%	8
C21679	C387	BRADFORD STATIC UNIT	1830	F	North & Yorks	CL8	29		Leeds	12	8-Apr	40%	2
C21680	C561	LEEDS STATIC UNIT	1800	F	North & Yorks	CL9	60		Leeds	24	8-Apr	40%	5
C21681	C919	CBTU APHERESIS	1800	F	North & Yorks	CL7		10	Leeds		8-Apr		
C21682	C867	BRADFORD APHERESIS	1745	F	North & Yorks	CL8		11	Leeds		8-Apr		
C21683	C893	LEEDS APHERESIS	1730	F	North & Yorks	CL9		13	Leeds		8-Apr		
C21684	C897	LEEDS RED CELL	0000	F	North & Yorks	CL9		2	Leeds		8-Apr		
C21773	C801	C.B.T.U. WB DONORS	1830	F	North & Yorks	CL7	20		Leeds	8	8-Apr	40%	2
N23675	NG07	Seahouses	1900	F	North & Yorks	NEN	100		Newcastle	40	8-Apr	40%	8
N23730	NK26	Sunderland (Fulwell)	1900	F	North & Yorks	NES	110		Newcastle	44	8-Apr	40%	9
N23965	NR15	Penrith	1900	F	North & Yorks	NEW	95		Newcastle	38	8-Apr	40%	8
N24042	NL09	Guisborough (Cen)	1900	F	North & Yorks	NET	95		Newcastle	38	8-Apr	40%	8
N24116	NW04	Hartlepool (O Manor)	1830	F	North & Yorks	NET	75		Newcastle	30	8-Apr	40%	6
N24238	NB13	Whickham	1700	F	North & Yorks	NES	80		Newcastle	32	8-Apr	40%	6
N24643	NA35	Throckley	1900	F	North & Yorks	NEN	75		Newcastle	30	8-Apr	40%	6

BH Prediction - Easter 2004

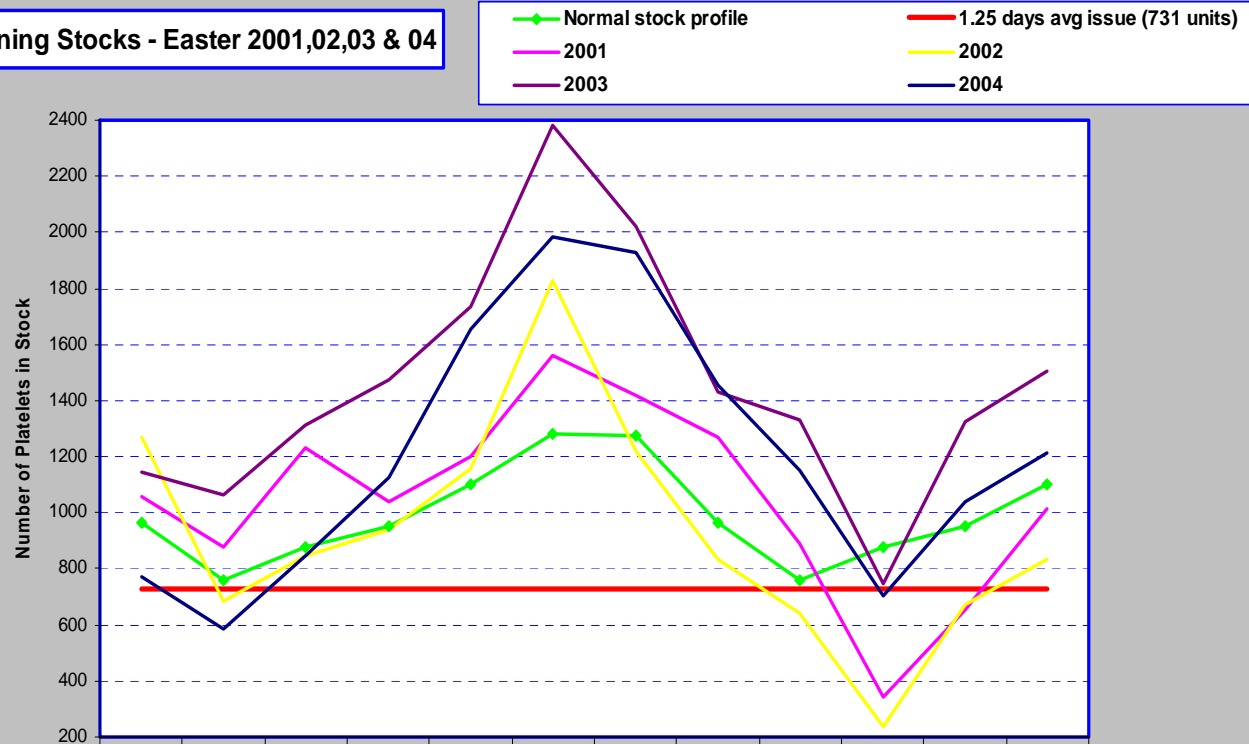


BH Prediction v Actual Stock - Easter 2004



Easter 2001, 02, 03 & 04

National Platelet Opening Stocks - Easter 2001,02,03 & 04



	5-Apr Mon	6-Apr Tue	7-Apr Wed	8-Apr Thu	9-Apr Fri	10-Apr Sat	11-Apr Sun	12-Apr Mon	13-Apr Tue	14-Apr Wed	15-Apr Thu	16-Apr Fri
Normal stock profile	966	757	880	953	1099	1284	1276	966	757	880	953	1099
1.25 days avg issue (731 units)	731	731	731	731	731	731	731	731	731	731	731	731
2001	1056	876	1230	1037	1202	1563	1421	1272	892	340	655	1012
2002	1267	687	844	941	1155	1831	1219	837	640	237	672	833
2003	1145	1065	1311	1473	1733	2381	2021	1430	1328	745	1324	1505
2004	771	585	844	1128	1654	1985	1929	1454	1149	706	1040	1214

Platelet Management - Future Challenges

Maintain Supply Continuity

Standing Orders

Apheresis Activity - Group Mix

Develop Issue & Processing Interface

Time Expiry

Restrictions on Previously Transfused Donors

- Currently WB only
- ?Apheresis?

Improve Service

Improve Efficiency

