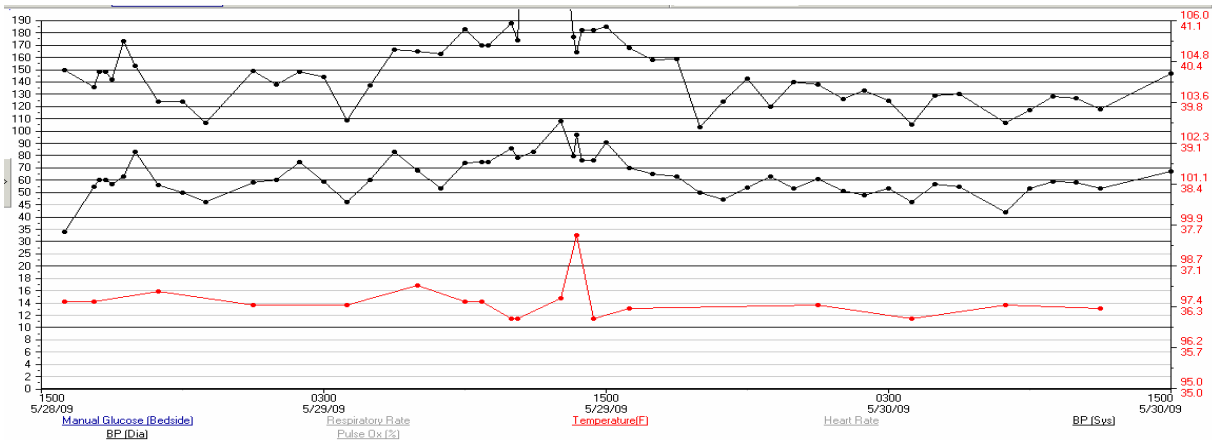


## A FEBRILE REACTION IN A WOMAN WITH ANTI-Fy<sup>b</sup>

Case study by Jim Perkins (©2009)

A 95 year old woman was found to have new complete atrio-ventricular block with a pulse rate of 30 and was referred to the hospital for pacemaker insertion. On admission her hemoglobin level was low at 8.7 mg/dL with low red cell indices (MCV = 80.4, lower limit of normal 81). Because of the risk of bleeding during the procedure transfusion of two units of RBCs was ordered, to be completed prior to pacemaker insertion scheduled for the following afternoon. Pretransfusion testing performed on the evening shift revealed anti-Fy<sup>a</sup>. The midnight shift technologist typed two units of RBCs as Fy<sup>a</sup> negative, and the crossmatches of both units appeared compatible.

Transfusion of the first unit of RBCs was initiated at 06:45 and completed without incident at 09:50. The second unit was started at 11:00. Two hours and forty five minutes later, after 80% of the unit had been infused, the patient developed chills and her temperature rose to 99.7°F from a baseline of 97.1°.



Red (bottom) line – temperature; black (mid and top) lines – systolic and diastolic pressures.

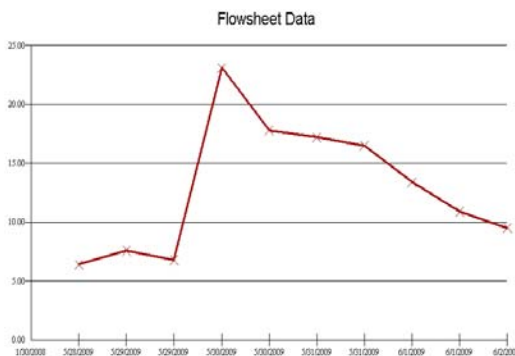
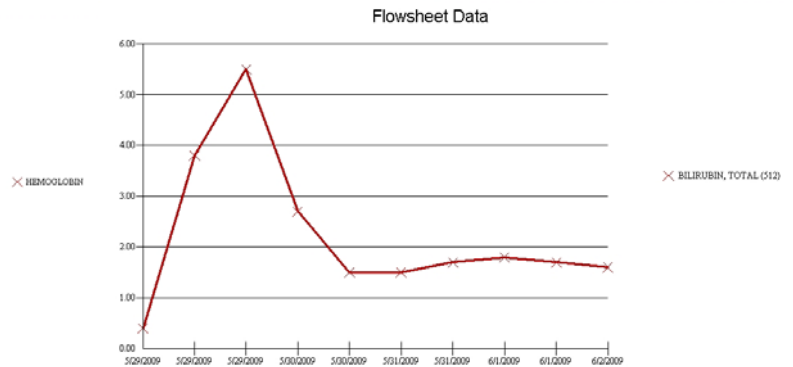
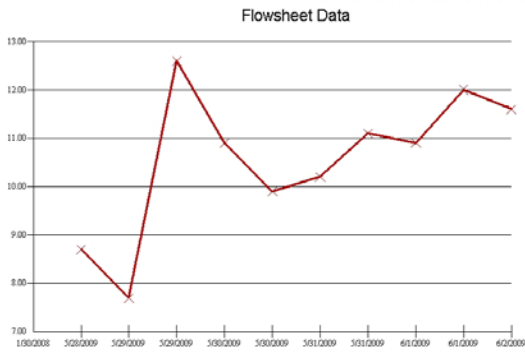
### QUESTIONS:

1. What is the differential diagnosis of fever at the time of transfusion?
2. What steps should be taken to investigate this fever?
3. What steps should be taken to care for the patient?

The transfusion was stopped, and transfusion reaction evaluation was initiated. The post-transfusion DAT was very weakly positive due to IgG on the cells, and the plasma appeared icteric in comparison to the pre-transfusion plasma. Repeat crossmatches of the second unit with both the pre- and post-transfusion specimens were positive, and the unit was shown to be Fy<sup>a</sup> positive. These results demonstrated that the patient had received a unit of incompatible blood due to a clerical error. Review of the crossmatch and donor typing procedures with the technologist did not disclose how she had made this clerical error.

The patient was given diphenhydramine and acetaminophen, after which she became confused and disoriented. She also complained of nausea. She was taken to the interventional radiology suite for her scheduled pacemaker insertion.

However, this was cancelled because, in spite of ondansetron administration, her nausea prevented her from lying down, and she felt too unwell in general to tolerate the procedure. The pacemaker was successfully inserted the following day. The following graphs and table summarize the course of her laboratory values.



Day	Time	Hgb/hct gm/dL & %	Platelets /μL	WBC /μL	T/Dbili mg/dL	LDH mg/dL	PT sec	Haptoglobin mg/dL	BUN/Cr mg/dL
Adm	14:25	8.7/27.5	199,000	6,400					50/1.5
2	03:45	7.7/24.1	162,000	7,600	0.4/0.1	135	11.6		44/1.3
2	06:45-13:47	2 units of RBCs transfused							
2	16:00	12.6/37.9	162,000	6,800	3.8/1.0	327			44/1.4
2	18:57				5.5/2.3	430		49.3	
3	06:00	10.9/33.1	124,000	23,100	1.5/		12.8		54/1.6
3	18:22	9.9/30.1	109,000	17,800					
4	04:56	10.2/31.4	107,000	17,200	1.5/		11.8		48/1.3
4	19:01	11.1/34.3	118,000	16,500	1.7/				41/1.1
5	05:30	10.9/33.6	117,000	13,400	1.8/		11.1		28/0.9
5	18:36	12.0/36.7	120,000	10,900	1.7/				31/0.9
6	06:40	11.6/35.8	125,000	9,500	1.6/		10.9		26/0.8

4. What manifestations of a hemolytic transfusion reaction did this patient present? Was diphenhydramine an appropriate treatment for this reaction?