



Welsh Blood Service  
Gwasanaeth Gwaed Cymru

# Pilot 1 Data in Relation to WTAIL Testing

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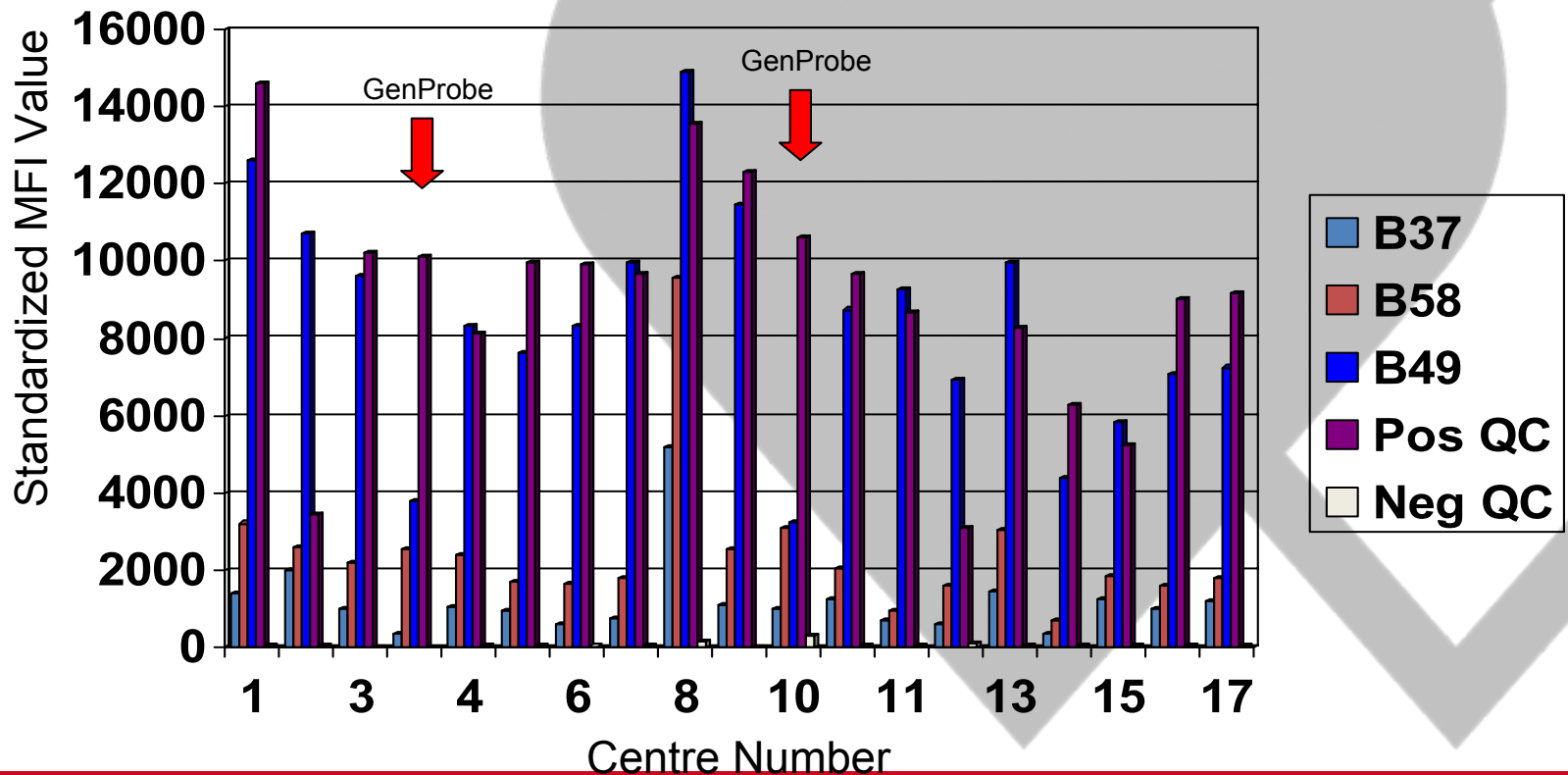
# Background

- Pilot is a 'UK wide' collaboration of luminex data results to enable for a review of the results obtained across laboratories
- Pilot 1:
  - Adjusted MFI values for specified luminex beads tested with NEQAS Scheme 3 sample 305/2010
    - NC
    - PC
    - B37
    - B49
    - B58
  - Basic methodology and kit lot information



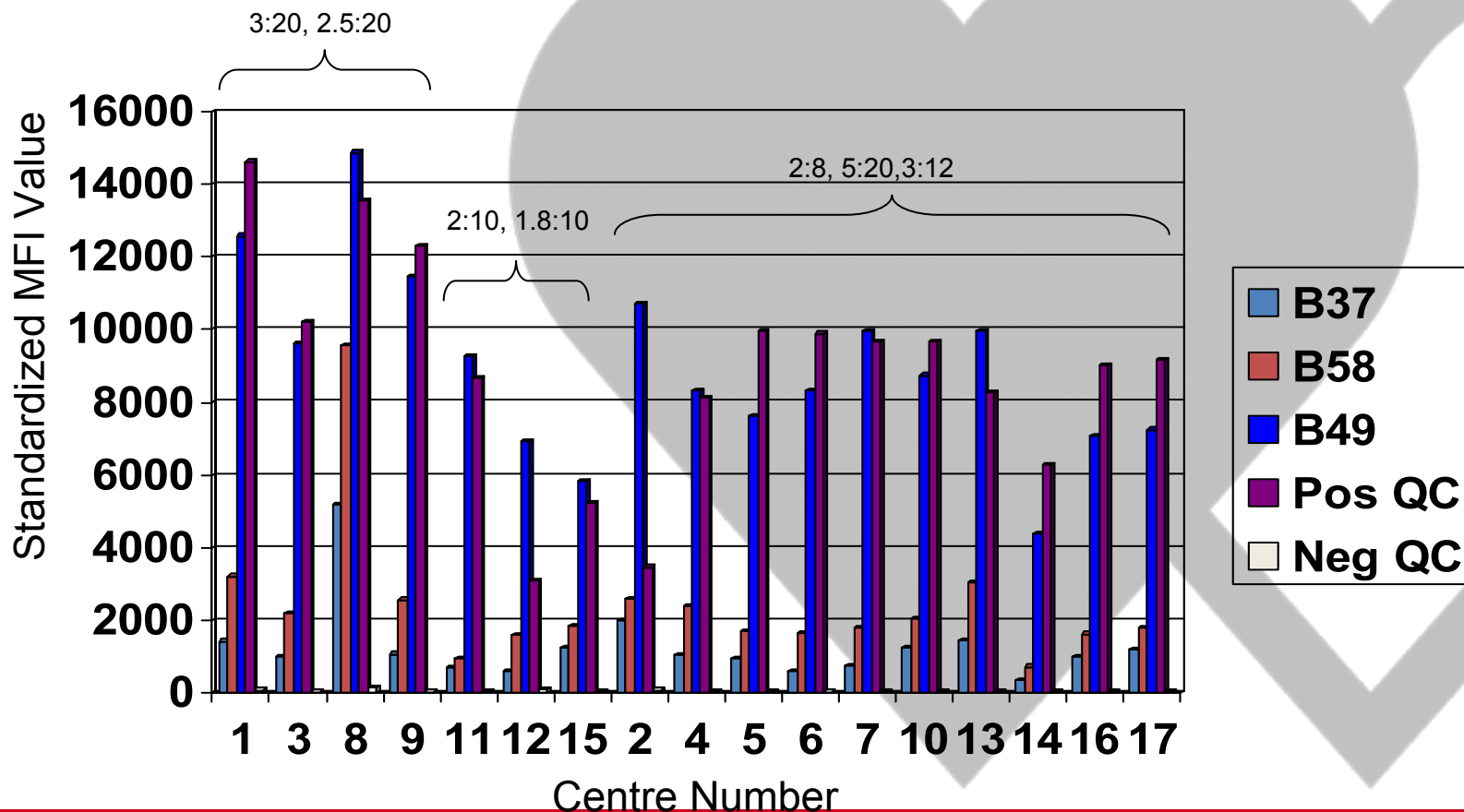
## Results Provided by Laboratories

- 17 centres returning results (2 also using GenProbe kits)



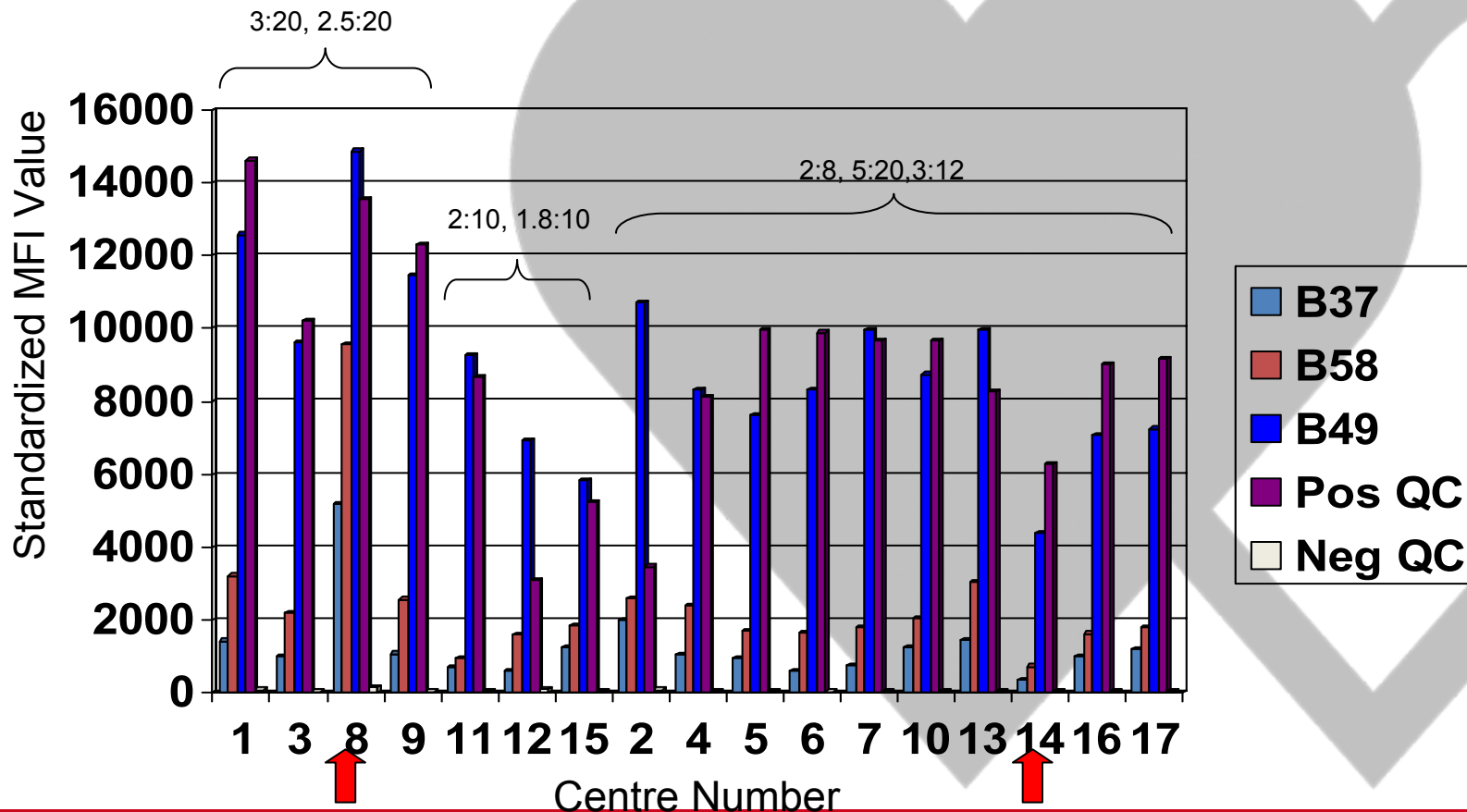


# One Lambda Test Results Grouped According to Bead vs Sera Ratio



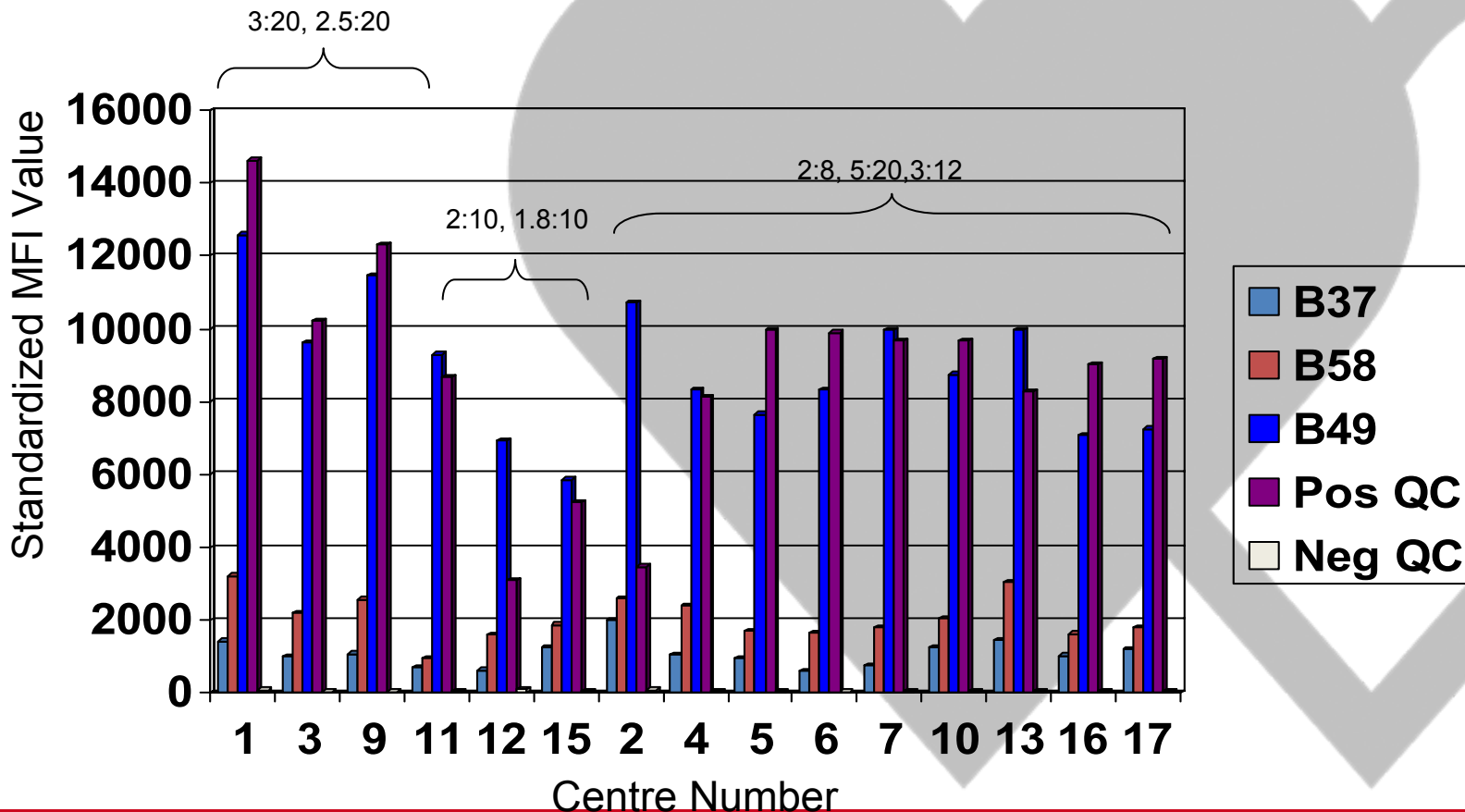


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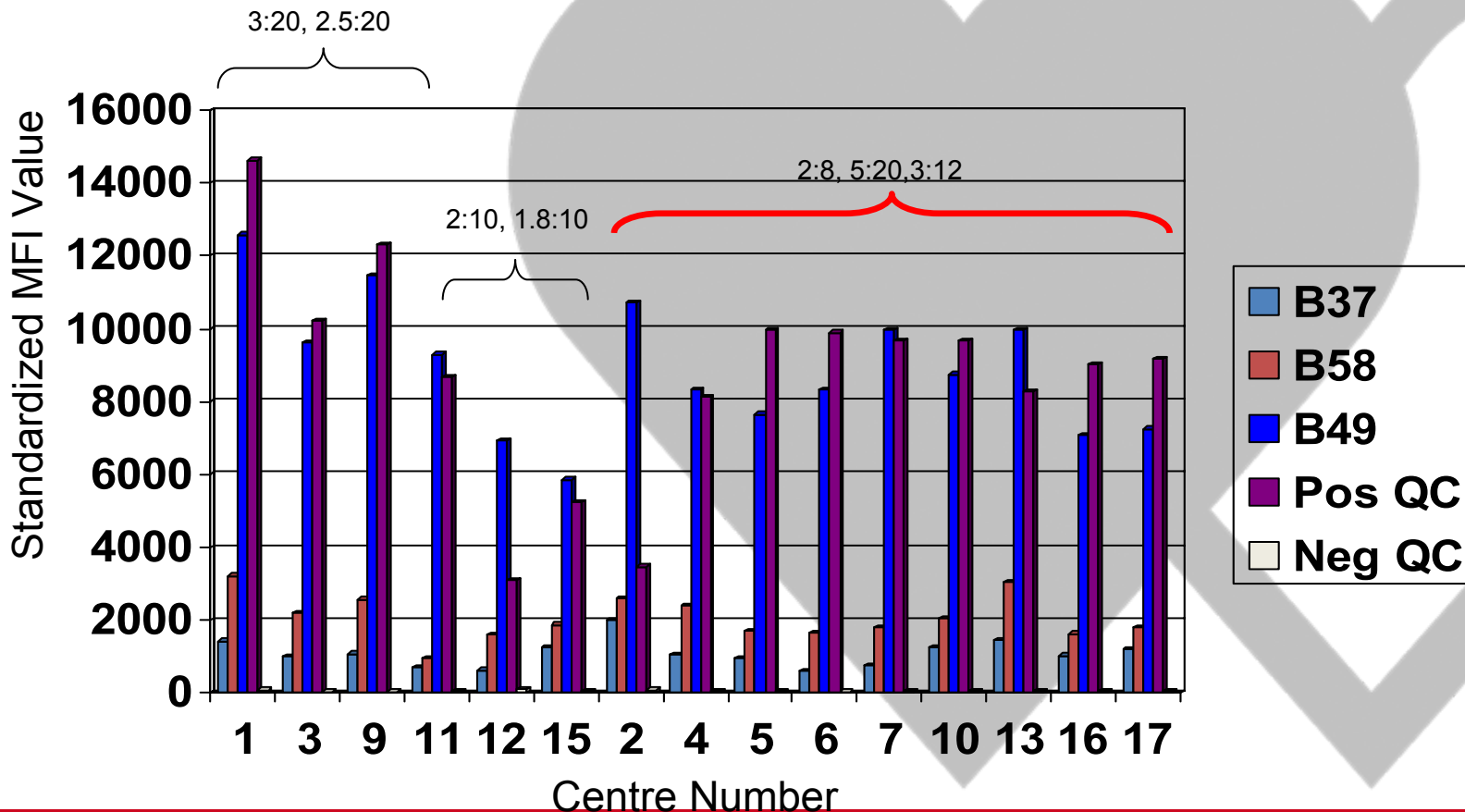


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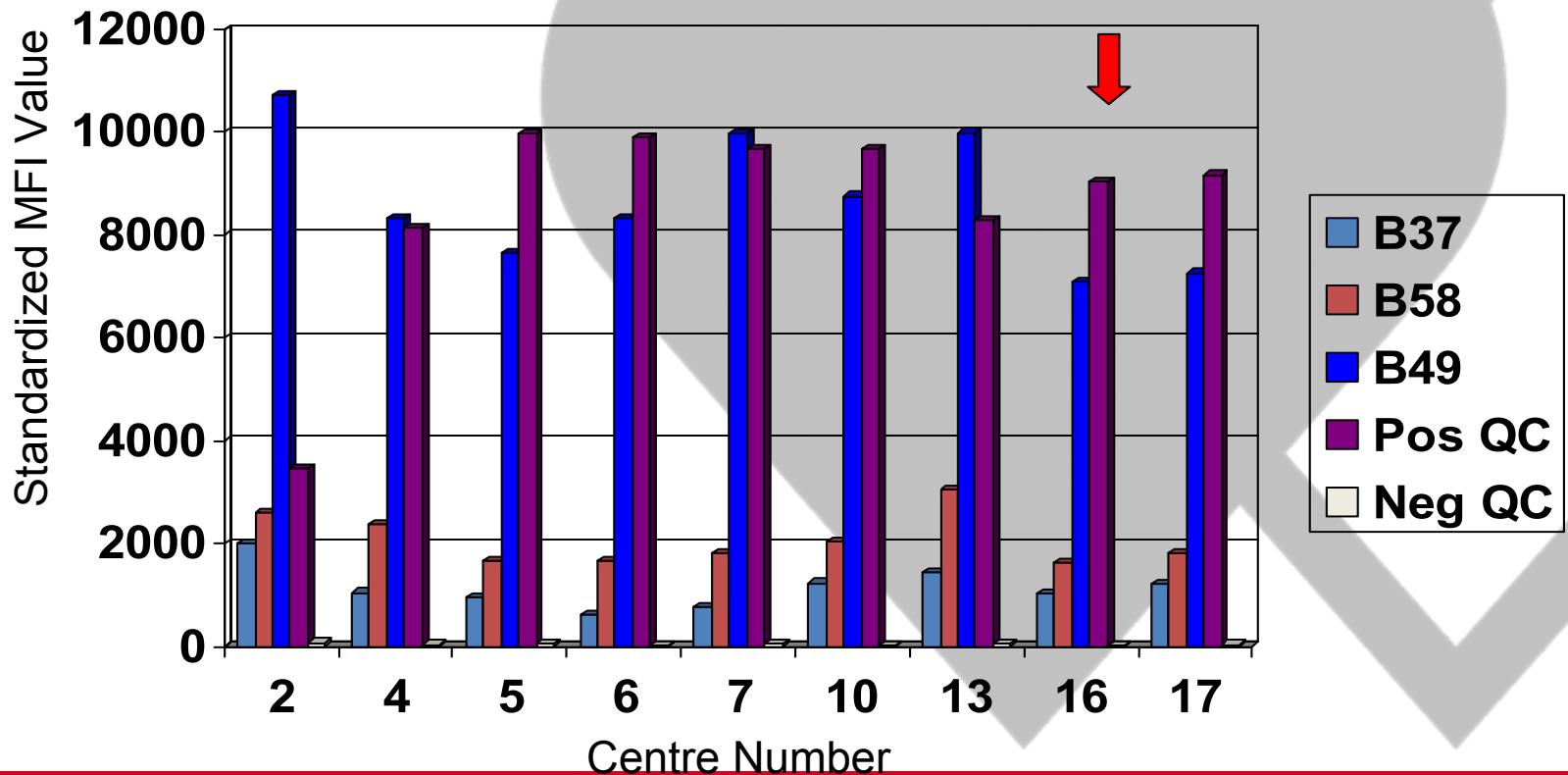


# WBS Approach to Luminex Testing

- One Lambda mixed and single antigen kits
- One Lambda negative control
- In house 'positive' control
- Filter trays and vacuum pump
- Methodology:
  - **2 $\mu$ l beads with 8 $\mu$ l patient sera**
  - Incubate 30mins room temp, 'dark', shaking platform
  - **Wash 200 $\mu$ l (x5)**
  - 1:100 PE conj IgG (40 $\mu$ l)
  - Incubate 30mins room temp, 'dark', shaking platform
  - PE conj removed using vacuum pump
  - **Wash 200 $\mu$ l (x4)**
  - 70 $\mu$ l PBS -> test
- See individual and cross tester variation of ~20%

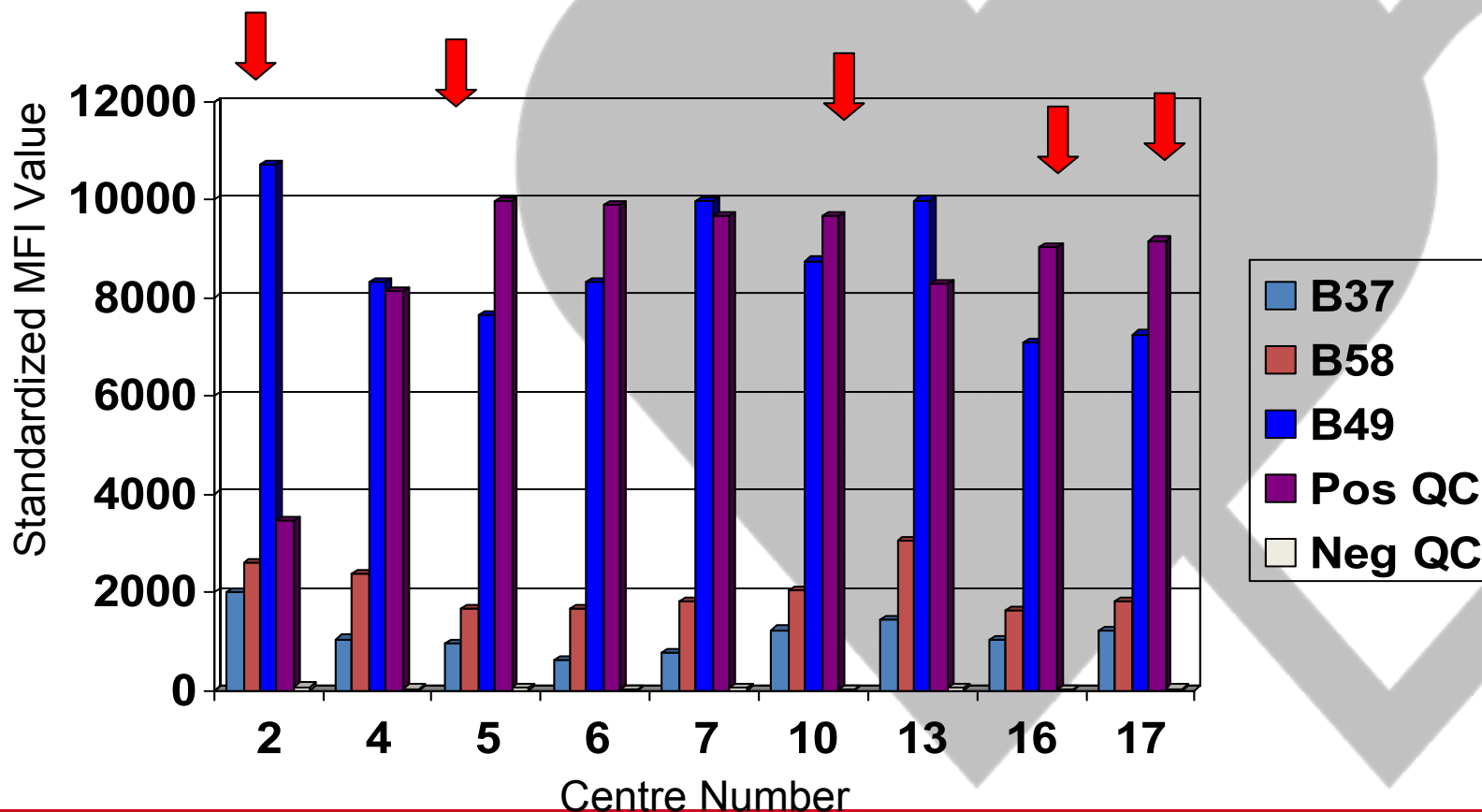


## MFI Results for Those Centres using a 1:4 Bead vs Sera Ratio



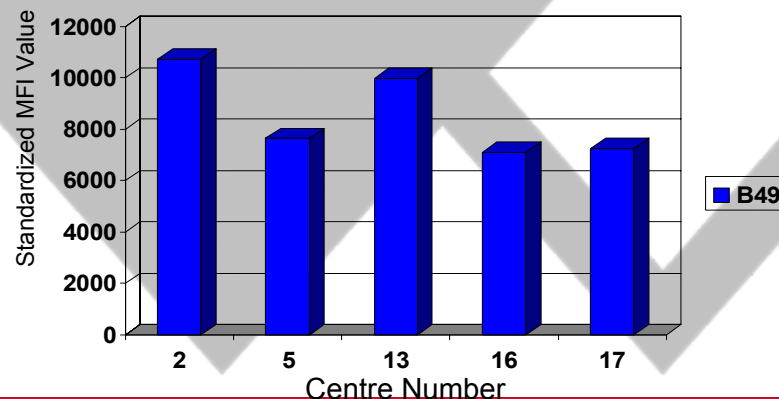
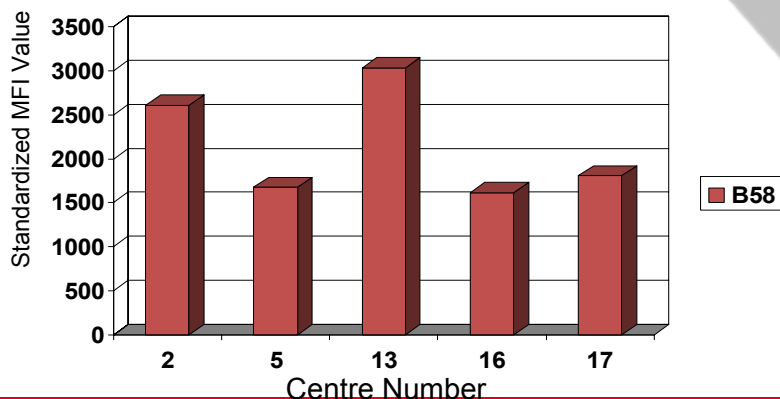
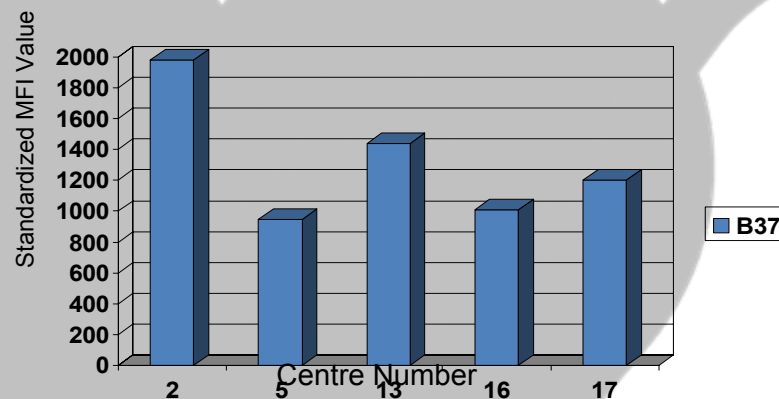
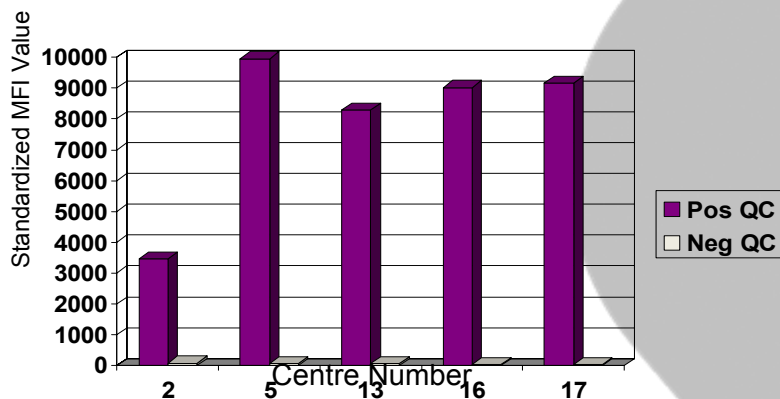


## MFI Results for Those Centres using a 1:4 Bead vs Sera Ratio





# Breakdown of Individual Reported Results for Centres Using 1:4 Bead Ratio and 200µl (x4/5) washes





## Mean, SD and Variance for Centres Using 1:4 Bead Ratio and 200µl (x4/5) washes

	Mean MFI	SD	% CV
B37	1316.80	419.30	31.84
B58	2145.40	634.69	29.58
B49	8538.20	1688.38	19.77
Pos QC	7976.40	2593.65	32.52
Neg QC	47.60	16.36	34.38



## Mean, SD and Variance for Centres Using 1:4 Bead Ratio and 200µl (x4/5) Washes vs All Centres\*

	Mean MFI	Mean MFI	SD	SD	% CV	%CV
B37	1316.80	1280.00	419.30	1079.37	31.84	84.33
B58	2145.40	2424.94	634.69	1950.84	29.58	80.45
B49	8538.20	9002.82	1688.38	2547.35	19.77	28.30
Pos QC	7976.40	8895.79	2593.65	3119.45	32.52	35.07
Neg QC	47.80	46.21	16.36	28.66	34.38	62.02

\*GenProbe Data Excluded; all centre data represented in red



# Summary (1)

- Much variation between laboratory testing
  - Bead vs serum ratio
  - Washes
  - Manual vs vacuum washes
  - Secondary step
  - ?storage of samples
    - Testing or receipt or following freeze thaw
  - Kit lot variation



## Summary (2)

- Much better correlation of data between laboratories that apply same methodology
  - In our laboratory see ~20% variation; inter lab variation between 20 and 35% (small cohort)



## Conclusion

- Until we establish a consensus method the comparison of MFI values between individual laboratories in the clinical setting will be 'difficult'