



# Paediatric Membrane Oxygenators and Heart Lung Bypass Systems:

What has changed in priming volume,  
subsequent patient Hb, Lactate,  
Intubation time and Duration of ICU Stay.



'Minimizing the priming volume by using shorter and smaller tubing as well as smaller disposables is the goal of every paediatric perfusionist.'

Andrea Menghini

Perfusion 1993; 8: 87-92



'The need for small prime volumes should be one of the primary criteria for oxygenator/reservoir choice.'

Martin Elliott

Perfusion 1993; 8: 82-86



# Cobe VPCML.

1/3 Section Only

Membrane Surface Area

- 0.4 m<sup>2</sup>

Maximum Flow

- 1300ml/min





# Terumo RX-05

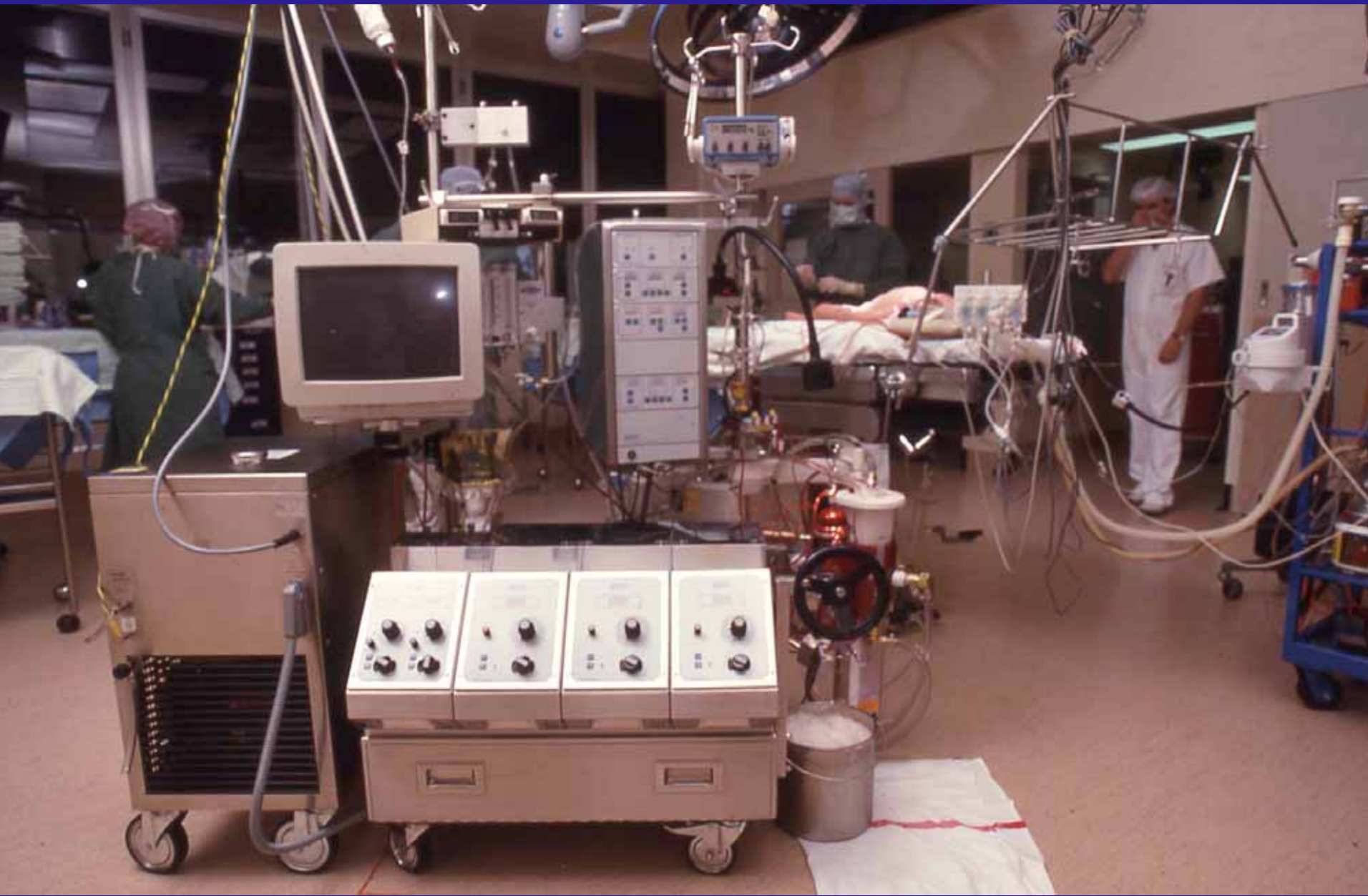
Membrane Surface Area

- 0.5 m<sup>2</sup>

Maximum Flow

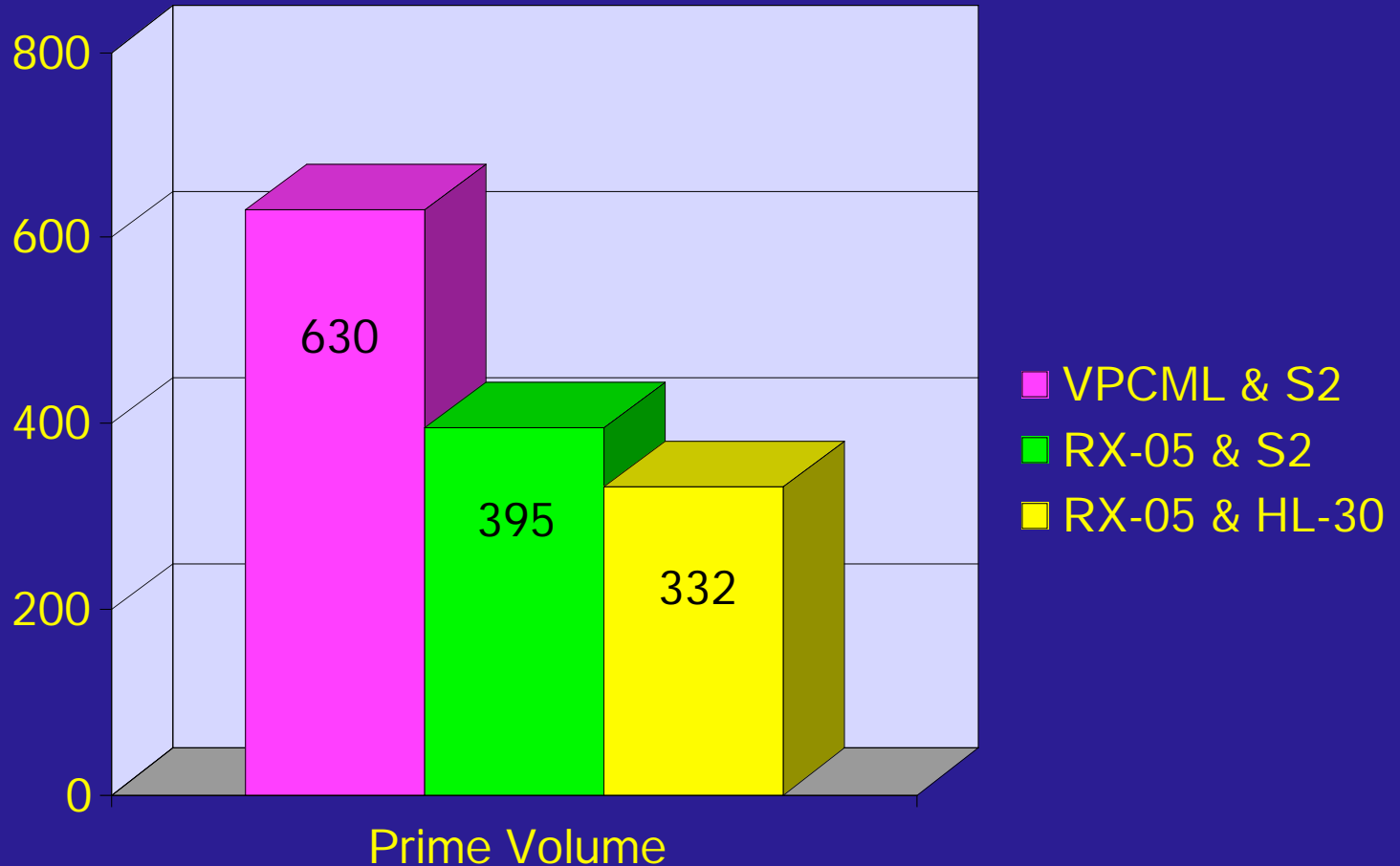
- 1500ml/min







# Priming Volume







# From a different perspective:

RX-05  
&  
HL-30



RX-05  
or  
Micro



VPCML



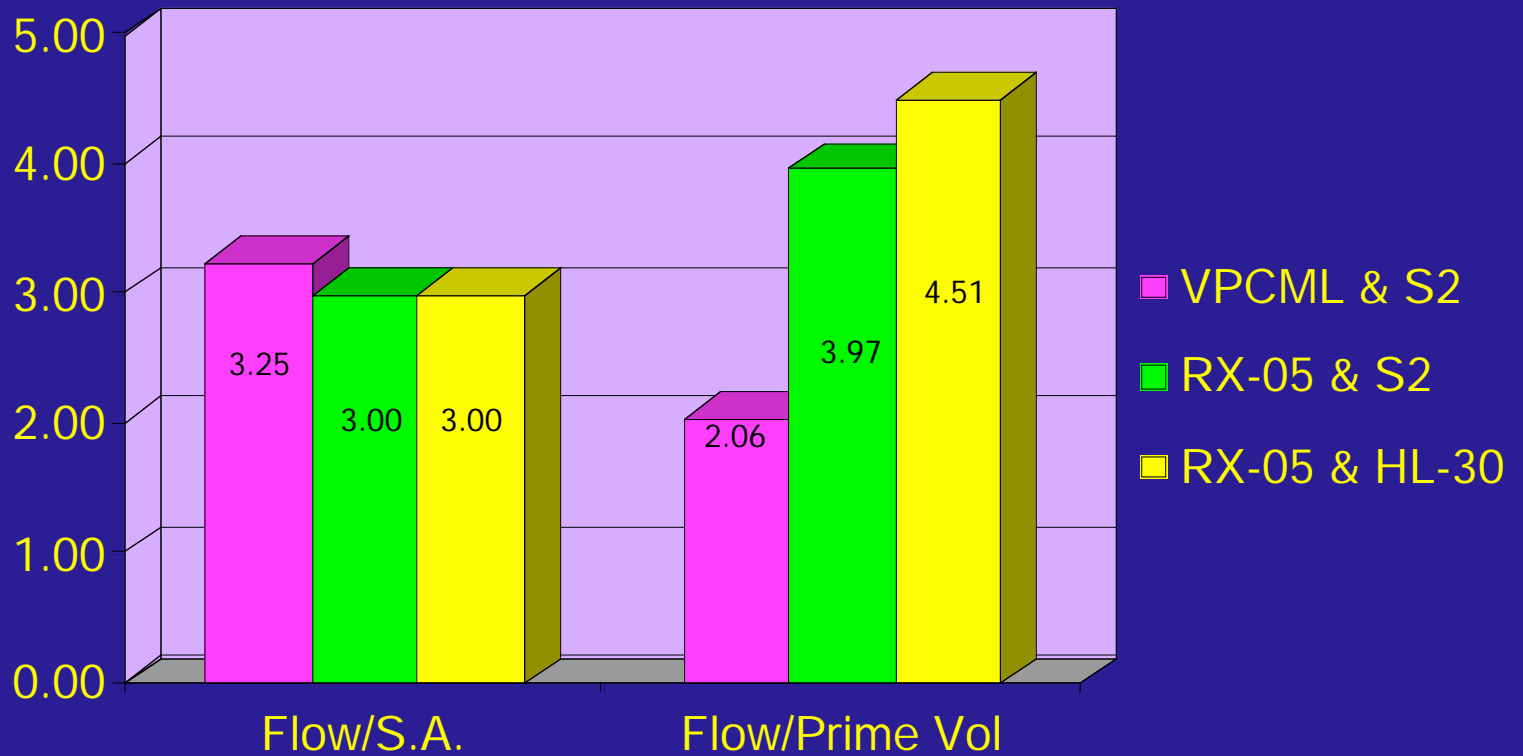
SX-10



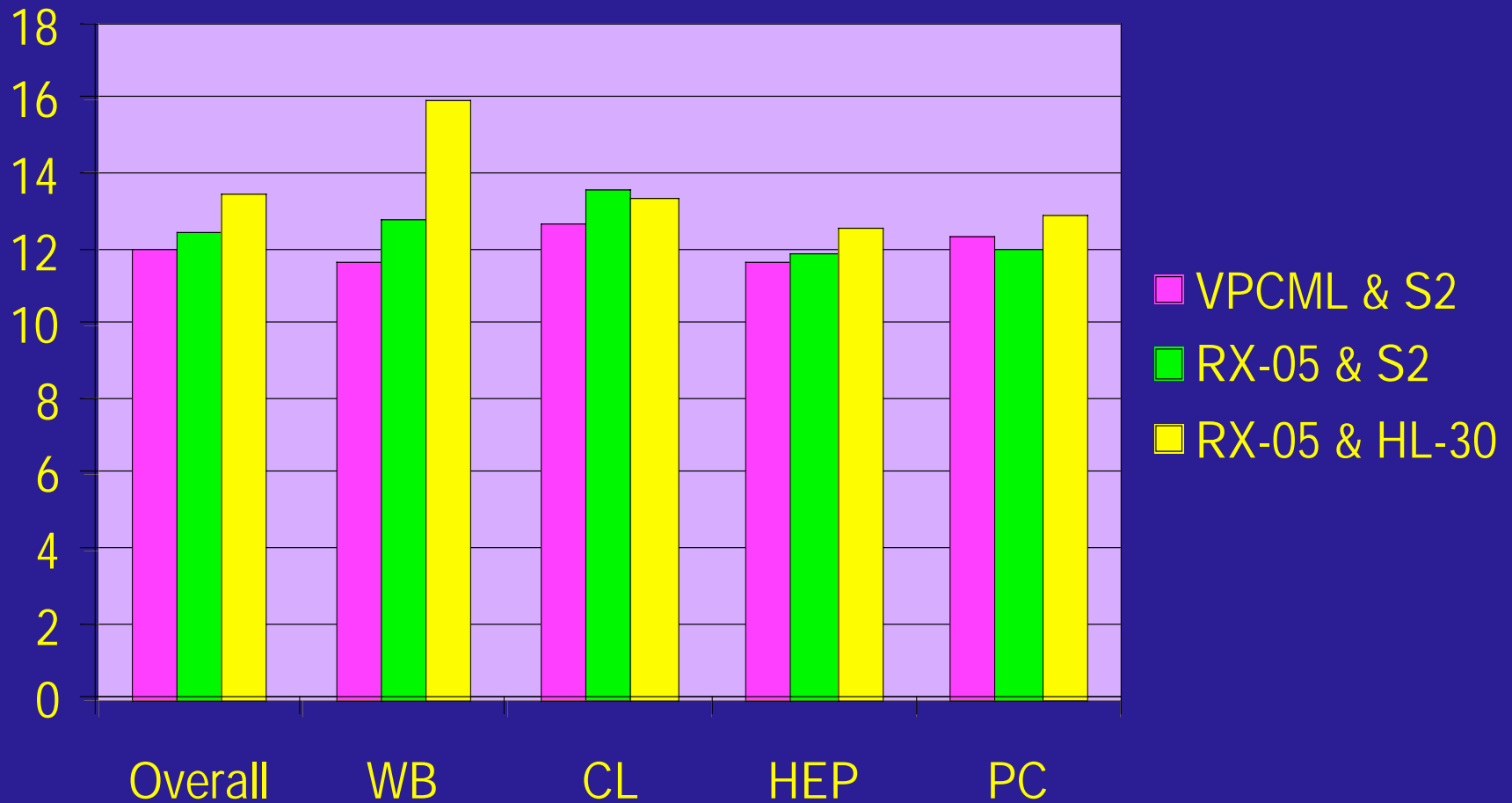
SX-18



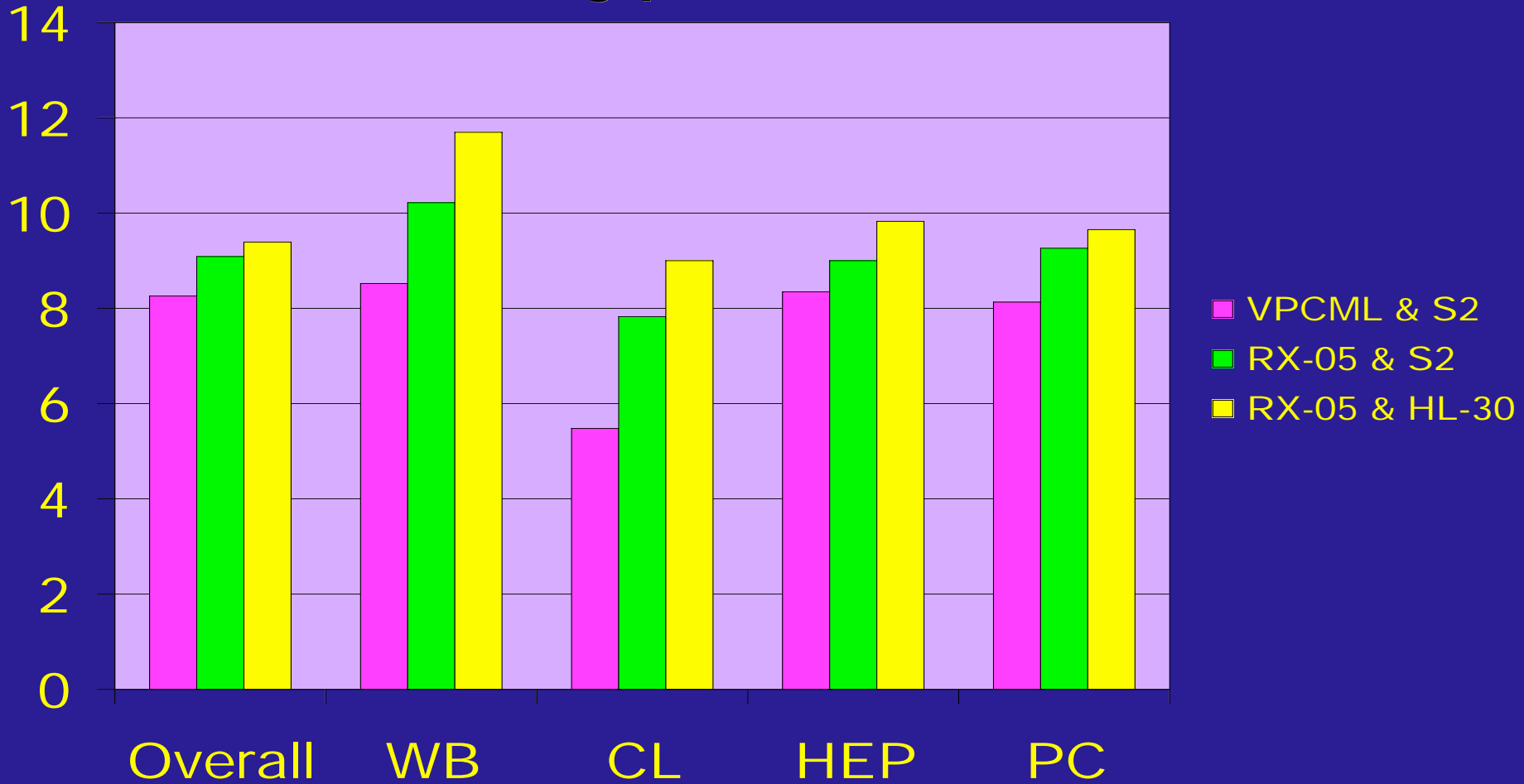
# Indexes



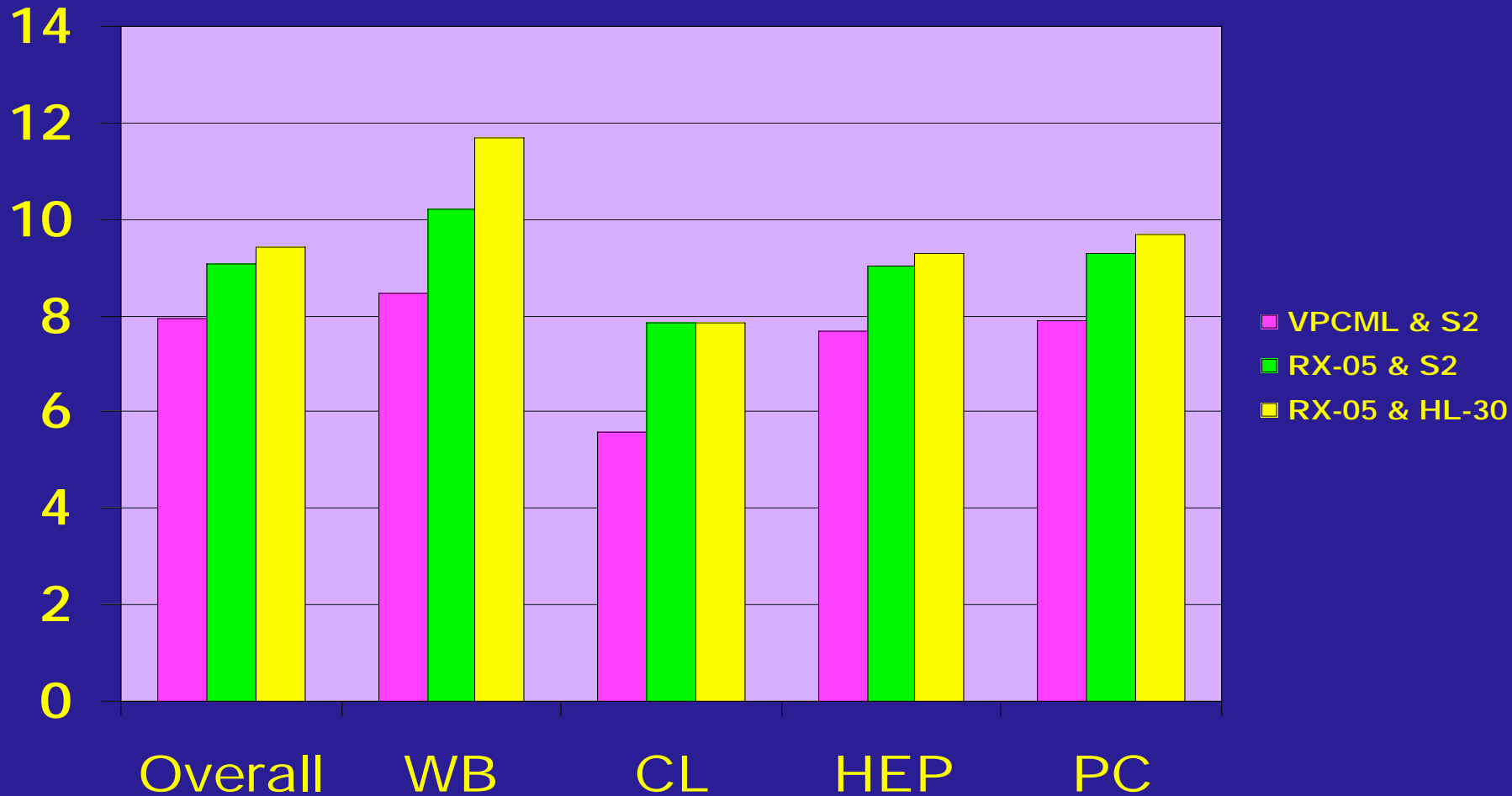
# Pre Bypass Hb



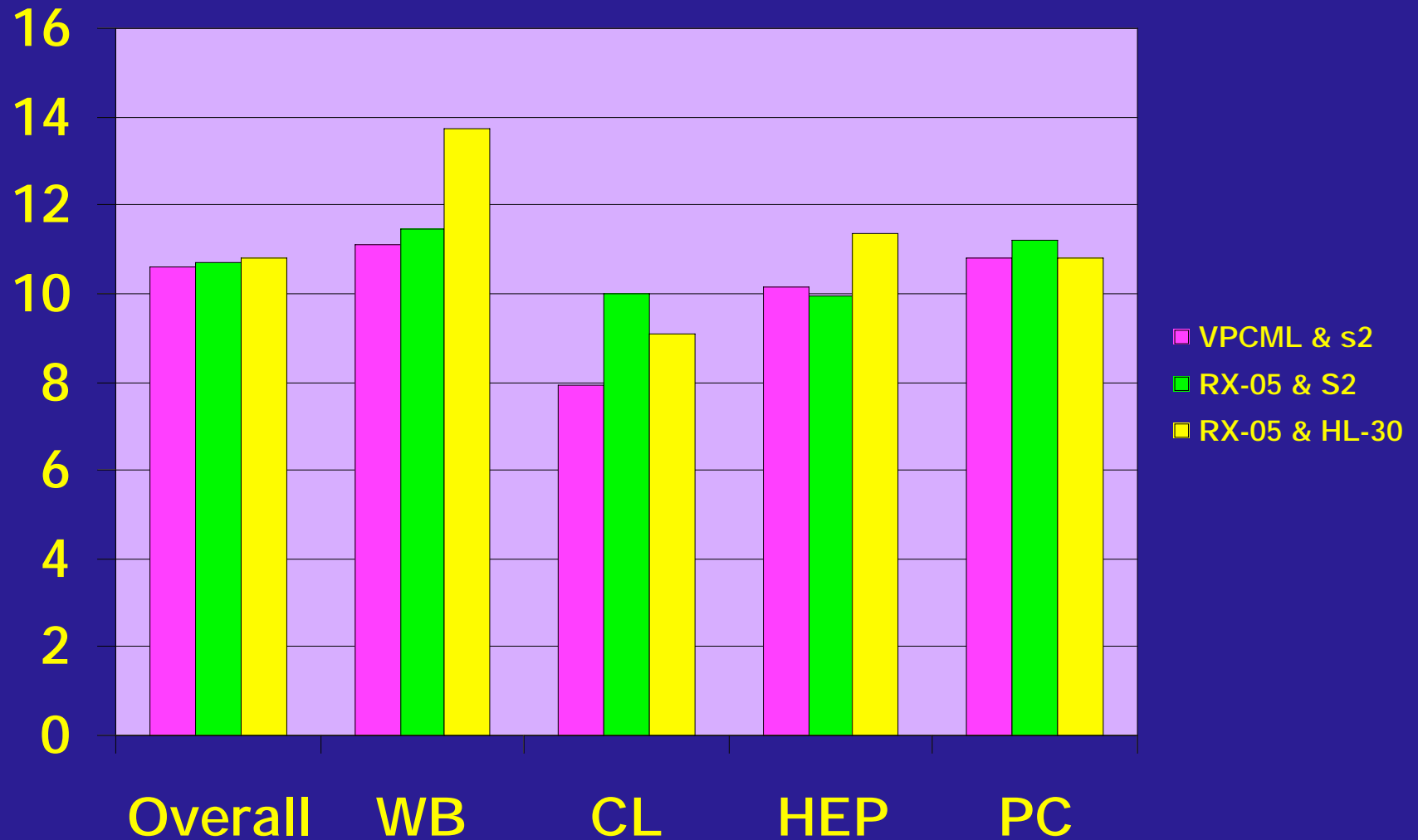
# Bypass Hb



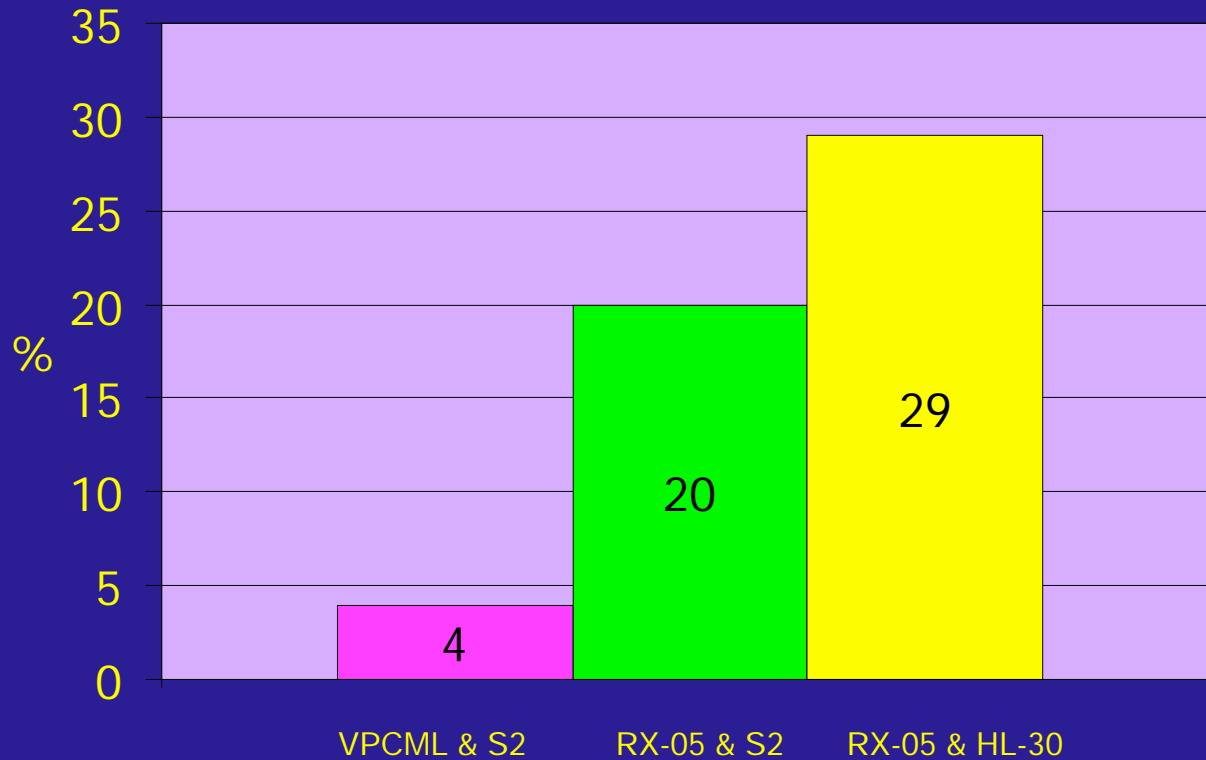
# Last Bypass Hb



# ICU Hb



# Percentage of Cases Clear Primed



'In the short term we should minimize the pump circuit volume and reposition the pump to reduce tubing length. In the medium term reservoir/oxygenators must be redesigned and in the long term, the whole basic concepts of venous return and arterial pumping must be re-addressed.'

Martin Elliott

Perfusion 1993; 8: 82-86





## Conclusion:

This study has shown that progress has been made in the areas of smaller disposables and pump positioning. However, there is no clear difference in patient outcome in the post operative parameters measured. Further investigation is needed.