Gaseous Micro-Emboli Removal during priming procedure using pulsatile flow with 4 different adult oxygenators with integrated arterial filter and open reservoir.

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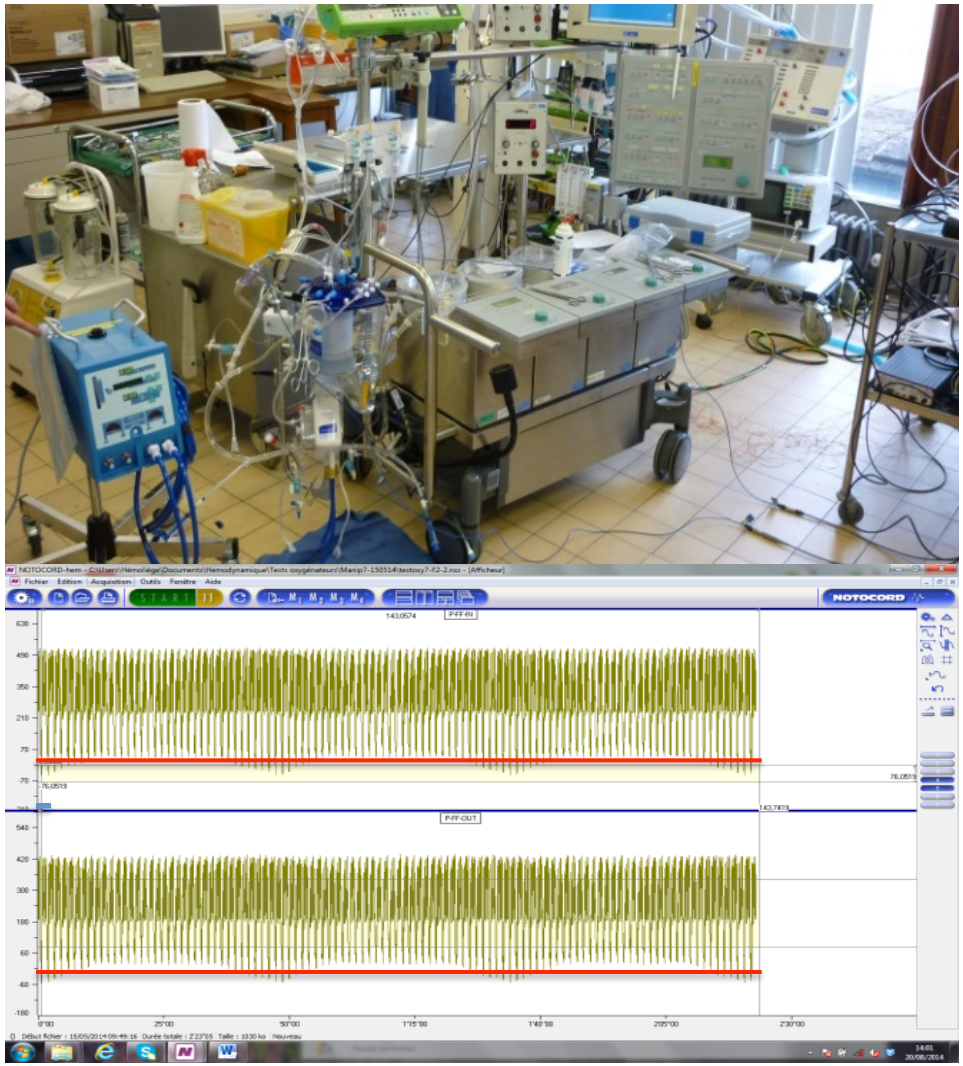
The normal physiological way our heart pumps blood throughout our body is using Pulsatile Flow.



Tests *in vitro:*
one of each type of
oxygenator to know
their limits with Pulsatile Flow

Optimal setting for PF with S5
= 45/75/35

Recorded pressures:
4 negative peaks/10sec

Pulsatile Flow during CPB

=> High velocity

=> High amounts of energy

=> Some negative pressures

=> ECC circuit must be stressed before CPB during priming procedure

=> Protection against

Fluid leakage

Rupture of the membrane

Abnormal appearance of air in the circuit

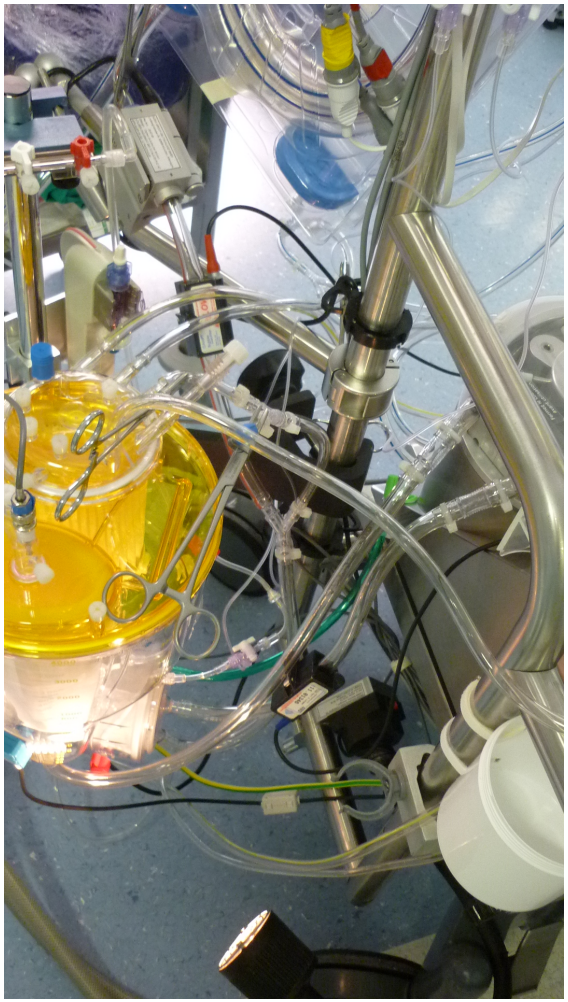
Priming protocole:

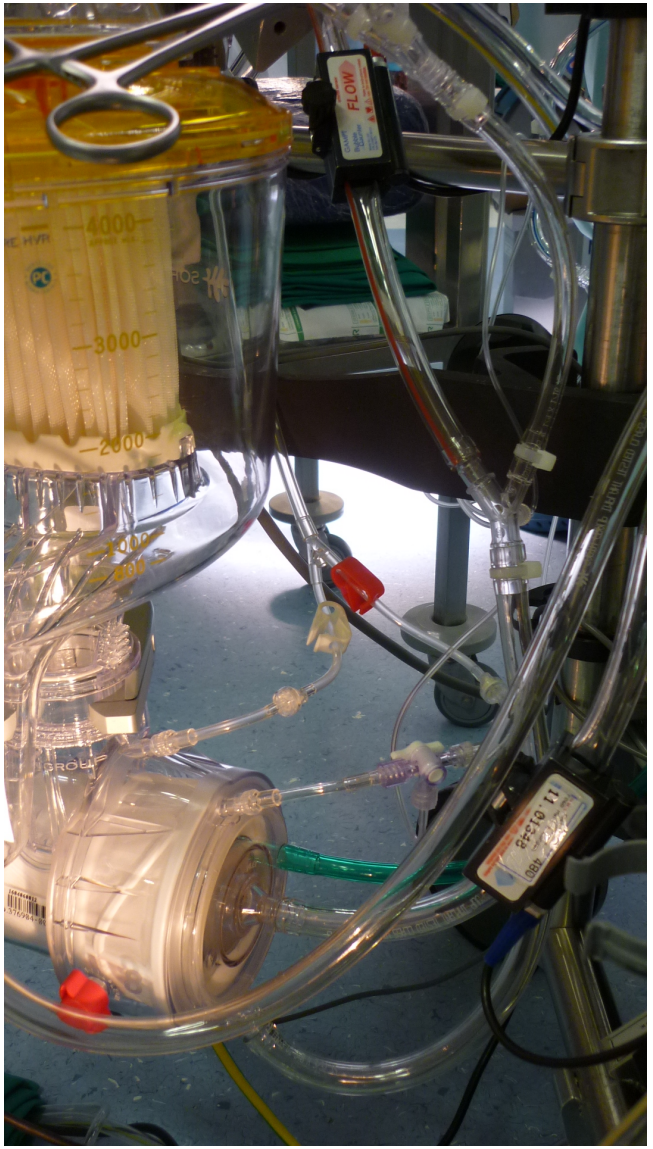
2 Liters of Plasmalyte A
37°C
200mmHg
Dynamic occlusivity
Continuous flow (CF) - 2 min (Gampt)
Pulsatile flow (PF) - 2 min (Gampt)

Roller pumps Stöckert S5 - Liva Nova
10 Priming procedures/ oxygenator
4 modern adult oxygenators:

Affinity Fusion®- Medtronic	n = 10
Capiox FX25® - Terumo	n = 10
Inspire 8F® - Liva Nova	n = 10
Quadrox i®- Maquet	n = 10

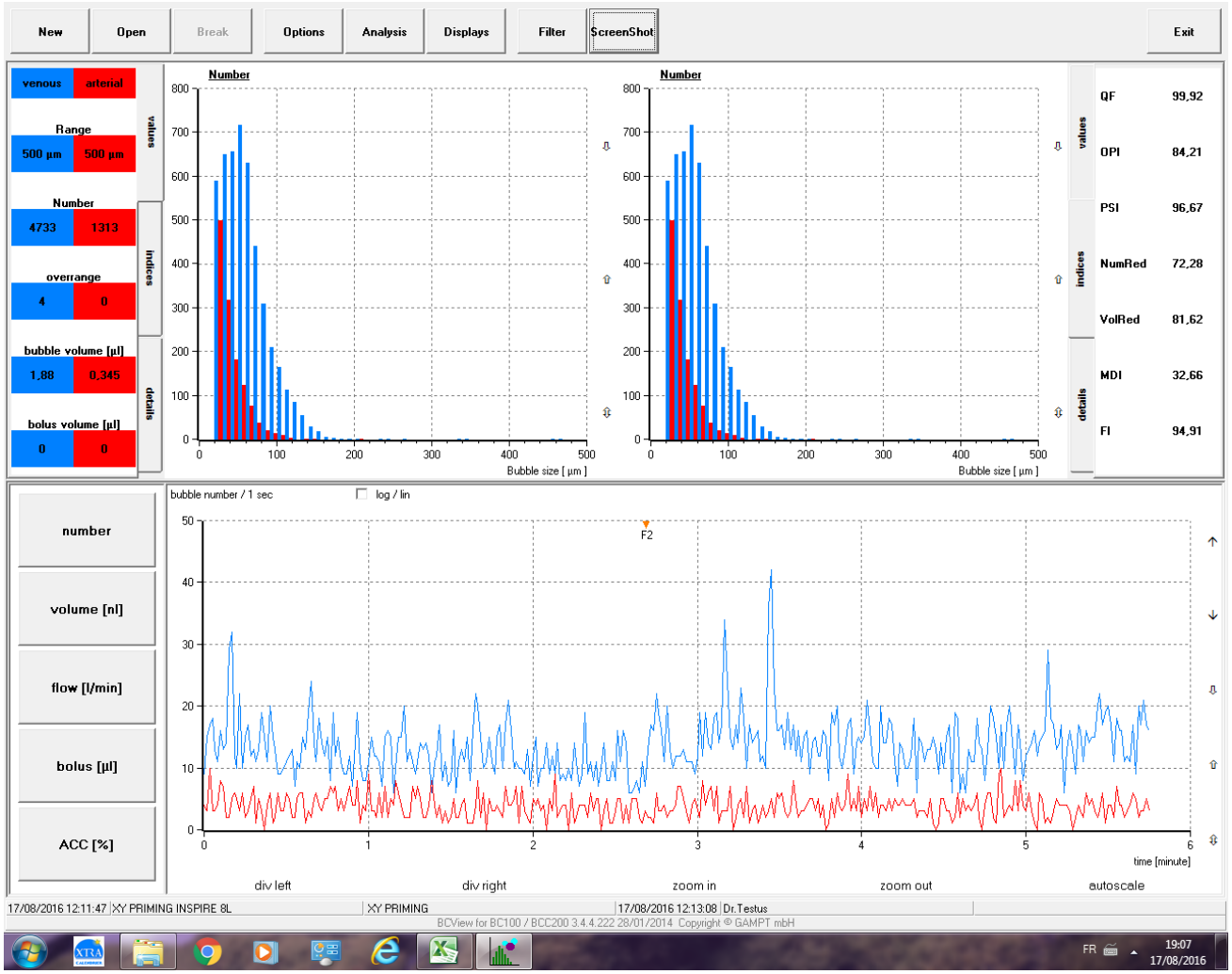
The Gampt BCC200:



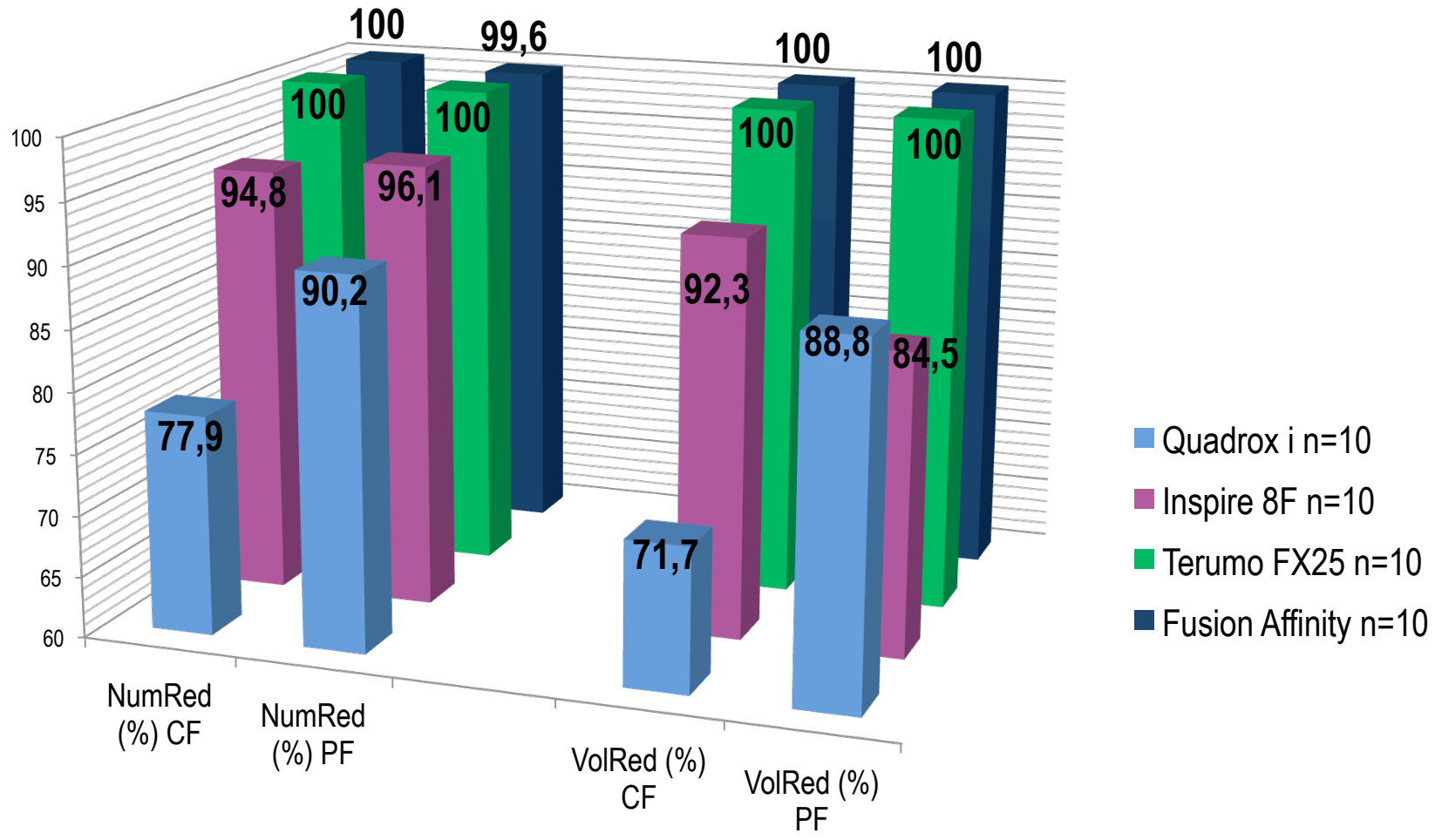


Data recorded by the Gampt BCC200:

QF
NumRed %
VolRed%
Number
Volume

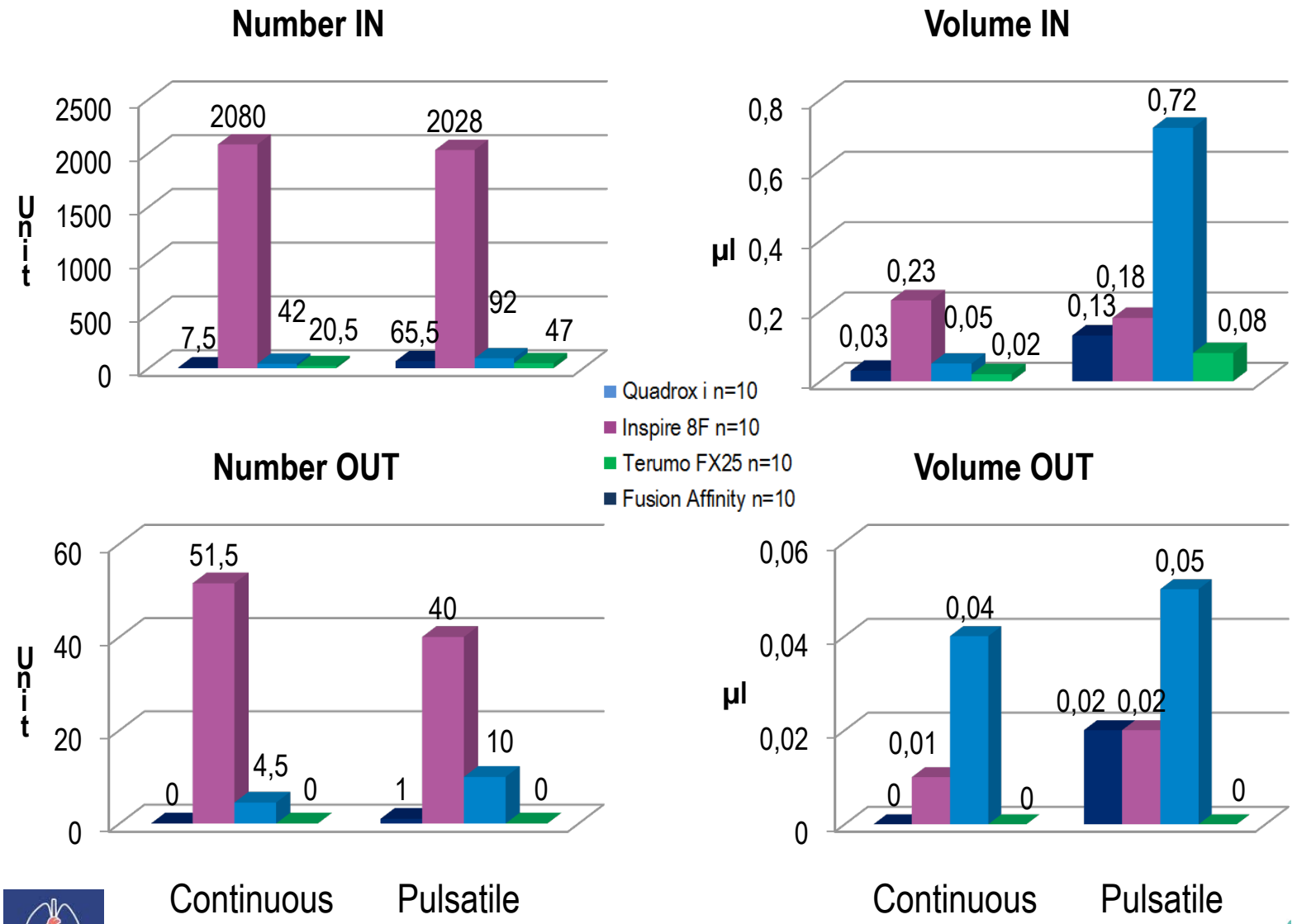


GME reduction by oxygenator and flow mode

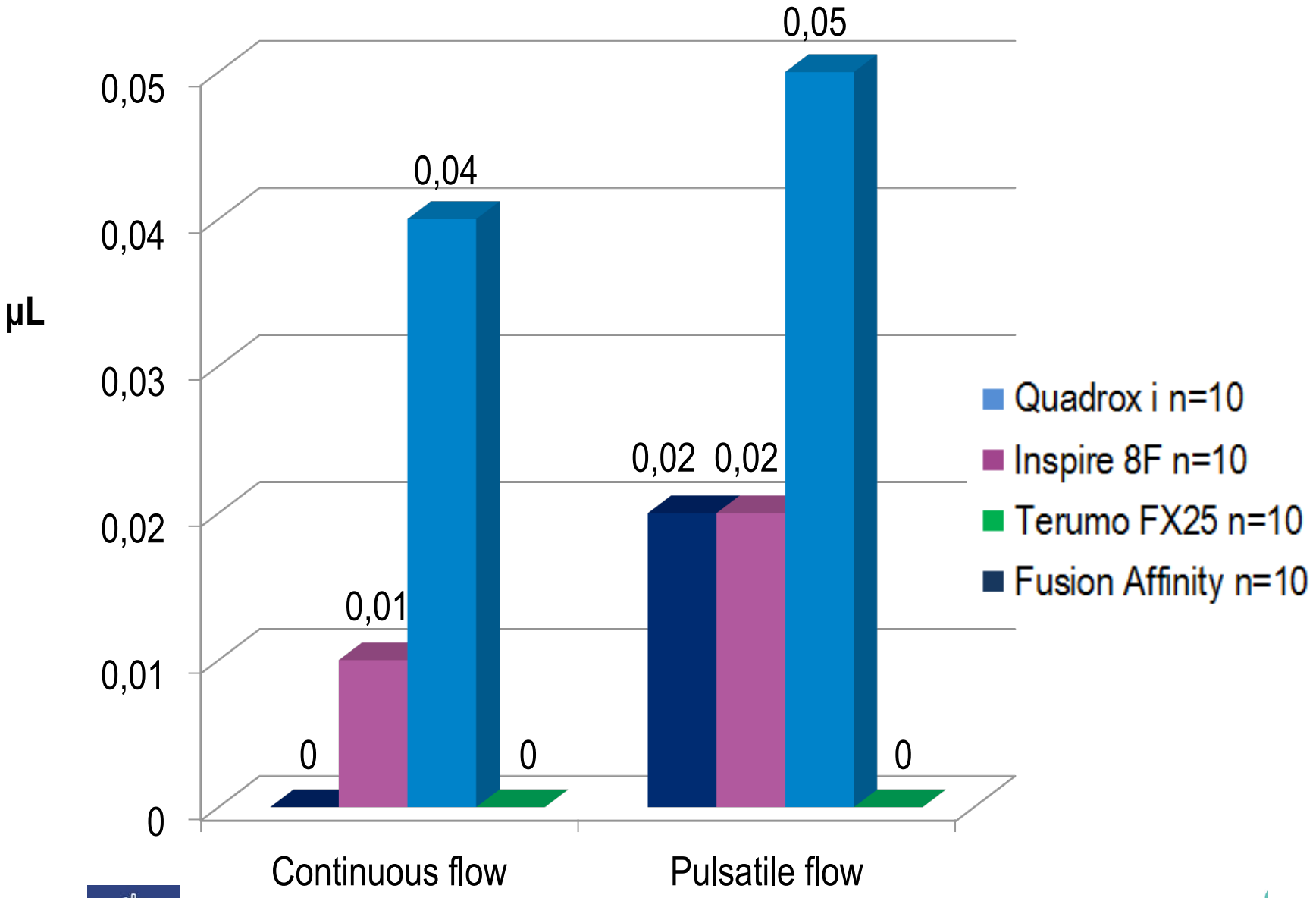


Comparison between oxygenators: *p*-value < 0,001 for all variables

GME number and volume by oxygenator and flow mode



GME volume downstream oxygenator



Conclusion:

In vitro ≠ In vivo

Venous reservoir: the more sensitive piece of the circuit?

Gampt: built to be used with continuous flow

=> Prospective and randomized study:

to show the airhandling of 5 oxygenators during CPB comparing continuous and pulsatile flow

Thank you for your attention !