T-Stat Sto2 vs. Somanetics INVOS During Brief Cardiac Arrest

Background:
This case report compares T-Stat® Sto2 as measured in the oral cavity (buccal mucosa), and INVOS® rSo2 as measured on the forehead, during cardiac repair with cardiac standstill.

Methods:
Subjects undergoing cardiac surgery were monitored using both non-invasive Visible Light (VLS) spectroscopy, sensitive to ischemia (T-Stat®, Spectros), and NIRS cerebral oximetry (INVOS 5100, Somanetics), under IRB approval at the Stanford Univ. Medical Center.

Results:
Baseline values showed a standard deviation of 1.8% for the T-Stat® and 3.1% for the INVOS monitors. During arrest, T-Stat® showed a rapid drop of 10% (p<0.0001), while INVOS showed only a 2.5% decline (p= n.s. due to larger noise in NIRS signal).

Conclusions:
T-Stat® VLS oximetry detects rapid-onset events within seconds, as previously published, enabling improved physician response times than with a slower INVOS NIRS technology. In addition, as baseline variation in T-Stat® is less than with published NIRS devices, changes become statistically significant more rapidly, again allowing for an improved response time.

2. T-Stat is indicated in infants(including neonates), children, or adults at risk for reduced-flow and no-flow ischemic states.