

HHSN268201000050C (19a) Round-2 QIBA/NIBIB 3-month Project Update
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We have one journal publication that was recently accepted and is currently in press (epub ahead of print March 1):

[Pillai JJ, Zaca D. Comparison of BOLD cerebrovascular reactivity mapping and DSC MR perfusion imaging for prediction of neurovascular uncoupling potential in brain tumors. Accepted for publication in *Technology in Cancer Research & Treatment* \(2012; in press\).](#)

This paper is the result of our first phase effort to compare T2*dynamic susceptibility contrast MR perfusion imaging with breath hold BOLD cerebrovascular reactivity mapping (BH CVR) in a cohort of 19 brain tumor patients. We discovered that while both techniques are adequate for assessing neurovascular uncoupling (NVU) potential in high grade glioma patients, in low grade gliomas, BH CVR outperformed T2*DSC perfusion imaging.

We are currently in the process of formulating a BOLD CVR map calibration method that we intend to apply to a group of normal volunteers first with language activation maps and then subsequently to a group of patients. This methods development phase will be the most time-intensive phase. We already have language activation data in a group of volunteers, but the scripts for the calibration algorithm have yet to be developed. We plan to consider applying the calibration method to motor mapping that has already been performed on a cohort of brain tumor patients if application to language mapping cannot be accomplished within the expected time period.

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