April 24, 2020

UPMC | University of Pittsburgh Medical Center

Department of Anesthesiology

STATISTICAL ANALYSIS PLAN

TITLE: **Modulation of long-term memory by the experience of pain during sedation with anesthetics**

NCT NUMBER: **NCT02515890**

PRINCIPAL INVESTIGATOR: Keith M. Vogt, M.D., Ph.D.
Dept. of Anesthesiology
Montefiore Hospital, Suite 467
3459 Fifth Avenue, Pittsburgh, PA 15213
Telephone: 412-999-8570

CO-INVESTIGATORS:

Julie Fiez, PhD
Psychology & Neuroscience
605 LRDC
3939 0'Hara Street
Pittsburgh, PA 15260

James W. Ibinson, MD, PhD
Anesthesiology
Montefiore Hospital, Suite 467
3459 Fifth Avenue, Pittsburgh, PA 15213

SOURCE OF SUPPORT: Foundation for Anesthesia Education and Research
Department of Anesthesiology, UPMC

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Statistical Analysis Plan

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Primary Outcome: Memory Testing

Explicit memory testing occurred the day following the drug administration and memory encoding session. Recognition testing was employed, using the well-known Remember-Know-New (RKN) scheme (Migo, Mayes et al. 2012). Recollection (for specific details) was indicated by a Remember response, while a Know response indicated familiarity. All words heard during the previous day were played intermixed with an equal number of foils, in randomized order. Memory performance was evaluated using d′. Statistical comparisons were performed in SPSS Statistics 23 (IBM, New York, NY) using a Bonferroni-corrected $P < .05$ as the threshold for significance.

The signal detection metric, d′, was calculated with formula: z(hits) – z(false alarms), where z() refers to the cumulative Gaussian distribution function, hits are previously-heard items recognized, and false alarms are foils incorrectly recognized. The average d' score for performance in each drug condition (saline, midazolam, and ketamine) are calculated and compared.