MEMORANDUM FOR 959 CSPS
ATTN: CAPT MARIYA GUSMAN

FROM: 59 MDW/SGVU

SUBJECT: Professional Presentation Approval

1. Your paper, entitled *Traumatic Brain Injury: Are We Conducting Enough Research?* presented at/published to MHSRS Conference 2017 – Date/Location To be Determined (Poster & Presentation) in accordance with MDWI 41-108, has been approved and assigned local file #17163.

2. Pertinent biographic information (name of author(s), title, etc.) has been entered into our computer file. Please advise us (by phone or mail) that your presentation was given. At that time, we will need the date (month, day and year) along with the location of your presentation. It is important to update this information so that we can provide quality support for you, your department, and the Medical Center commander. This information is used to document the scholarly activities of our professional staff and students, which is an essential component of Wilford Hall Ambulatory Surgical Center (WHASC) internship and residency programs.

3. Please know that if you are a Graduate Health Sciences Education student and your department has told you they cannot fund your publication, the 59th Clinical Research Division may pay for your basic journal publishing charges (to include costs for tables and black and white photos). We cannot pay for reprints. If you are a 59 MDW staff member, we can forward your request for funds to the designated Wing POC at the Chief Scientist’s Office, Ms. Alice Houy, office phone: 210-292-8029; email address: alice.houy.civ@mail.mil.

4. Congratulations, and thank you for your efforts and time. Your contributions are vital to the medical mission. We look forward to assisting you in your future publication/presentation efforts.

LINDA STEEL-GOODWIN, Col, USAF, BSC
Director, Clinical Investigations & Research Support

*Warrior Medics — Mission Ready — Patient Focused*
PRO PROCESSING OF PROFESSIONAL MEDICAL RESEARCH/TECHNICAL PUBLICATIONS/PRESENTATIONS

1. TO: CLINICAL RESEARCH
2. FROM: (Author's Name, Rank, Grade, Office Symbol)
   Mariya Gusman
3. GME/GHSE STUDENT: [ ] YES [ ] NO
4. PROTOCOL NUMBER: NA

5. PROTOCOL TITLE: (NOTE: For each new release of medical research or technical information as a publication/presentation, a new 59 MDW Form 3039 must be submitted for review and approval.)

NA - Pubmed searches were the only source of data

6. TITLE OF MATERIAL TO BE PUBLISHED OR PRESENTED:
   Traumatic Brain Injury: Are We Conducting Enough Research?

7. FUNDING RECEIVED FOR THIS STUDY? [ ] YES [ ] NO FUNDING SOURCE:

8. DO YOU NEED FUNDING SUPPORT FOR PUBLICATION PURPOSES? [ ] YES [ ] NO

9. IS THIS MATERIAL CLASSIFIED? [ ] YES [ ] NO

10. IS THIS MATERIAL SUBJECT TO ANY LEGAL RESTRICTIONS FOR PUBLICATION OR PRESENTATION THROUGH A COLLABORATIVE RESEARCH AND DEVELOPMENT AGREEMENT (CRADA), MATERIAL TRANSFER AGREEMENT (MTA), INTELLECTUAL PROPERTY RIGHTS AGREEMENT ETC.? [ ] YES [ ] NO

NOTE: If the answer is YES then attach a copy of the Agreement to the Publications/Presentations Request Form.

11. MATERIAL IS FOR: [ ] DOMESTIC RELEASE [ ] FOREIGN RELEASE

   CHECK APPROPRIATE BOX OR BOXES FOR APPROVAL WITH THIS REQUEST. ATTACH COPY OF MATERIAL TO BE PUBLISHED/PRESENTED.

   11a. PUBLICATION/JOURNAL (List intended publication/journal.)

   11b. PUBLISHED ABSTRACT (List intended journal.)

   11c. POSTER (To be demonstrated at meeting: name of meeting, city, state, and date of meeting.)
   MHSRS Conference 2017 - To Be Determined

   11d. PLATFORM PRESENTATION (At civilian institutions: name of meeting, state, and date of meeting.)
   MHSRS Conference 2017 - To Be Determined

   11e. OTHER (Describe: name of meeting, city, state, and date of meeting.)

12. HAVE YOUR ATTACHED RESEARCH/TECHNICAL MATERIALS BEEN PREVIOUSLY APPROVED TO BE PUBLISHED/PRESENTED? [ ] YES [ ] NO

   ASSIGNED FILE # ____________________________ DATE ____________________________

13. EXPECTED DATE WHEN YOU WILL NEED THE CRD TO SUBMIT YOUR CLEARED PRESENTATION/PUBLICATION TO DTIC

   NOTE: All publications/presentations are required to be placed in the Defense Technical Information Center (DTIC).

   DATE 15 Jun 2017

14. 59 MDW PRIMARY POINT OF CONTACT (Last Name, First Name, M.I., email) 15. DUTY PHONE/PAGER NUMBER
   Gusman, Mariya mariya.gusman.mil@mail.mil 845-916-3290

16. AUTHORSHIP AND CO-AUTHOR(S) List in the order they will appear in the manuscript.

   LAST NAME, FIRST NAME AND M.I. GRADE/RANK SQUADRON/GROUP/OFFICE SYMBOL INSTITUTION (If not 59 MDW)

   a. Primary/Corresponding Author
      Mariya Gusman Capt 959 CSPS

   b. Jonathan Sosnow
      Lt Co1 959 MDOS/SGOI

   c. Jeff Howard
      DB3 USAISR

   d. 

   e. 

17. IS A 502 ISG/JAC ETHICS REVIEW REQUIRED (JER DOD 5500.07-R)? [ ] YES [ ] NO

   I CERTIFY ANY HUMAN OR ANIMAL RESEARCH RELATED STUDIES WERE APPROVED AND PERFORMED IN STRICT ACCORDANCE WITH 32 CFR 219, AFMAN 40-401 JP, AND 59 MDW 41-108. I HAVE READ THE FINAL VERSION OF THE ATTACHED MATERIAL AND CERTIFY THAT IT IS AN ACCURATE MANUSCRIPT FOR PUBLICATION AND/OR PRESENTATION.

18. AUTHOR'S PRINTED NAME, RANK, GRADE
   Mariya Gusman, Capt, 0-3

19. AUTHOR'S SIGNATURE
   GUSMAN MARIYA 1366423179

20. DATE March 12, 2017

21. APPROVING AUTHORITY'S PRINTED NAME, RANK, TITLE
   Christian L Carlson, LTC(P), Residency Program Director

22. APPROVING AUTHORITY'S SIGNATURE
   CARLSON CHRISTIAN LAC0L 114641039

23. DATE March 14, 2017
### 1st Endorsement

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PREVIOUS EDITIONS ARE OBSOLETE

Page 3 of 3 Pages
Traumatic Brain Injury: Are We Conducting Enough Research?

Capt Mariya Gusman MD, Lt Col Jonathan A Sosnov MD, Jeffrey T Howard PhD

Background: Following an uptick in blast injuries, the past decade has seen a large-scale recategorization of what were previously thought of as benign 'concussions' into a significant subset of Traumatic Brain Injury (TBI). The expanded diagnosis has gained public recognition and research funding. However, this has yet to translate into a significant increase in treatment options. There have been concerns that a paucity of appropriate research is behind the lack of emerging treatments. As neurological disorders are notoriously complex, we set out to compare the state of TBI research to that of the 11 other most common neurological diagnoses.

Methods: We queried the Pubmed database from 1996-2016 for studies performed in the top 12 neurological diagnoses. The totals were segmented by randomized controlled trials (RCTs), diagnostic studies, and systematic reviews. A common econometric method known as the translog production function (TPF), was used to analyze the data. This method estimates the exponential growth rate of a given output as a function of a set of inputs. For the present study, the output was the number of published articles over time, within each diagnosis and study type. The TPF was specified as the Number of Articles=Intercept * Year², where e1 is the base of the natural log, approximately 2.718 and e2 is the exponential growth rate. General linear models were used to estimate the value of e1 and e2 for each diagnosis and type of study using SAS 9.4. The resulting growth rates were then compared.

Results: Of the 12 evaluated diagnoses, the highest rate of growth across all study types was seen in Autism Spectrum Disorder (ASD), whose current rate of total study growth was 2.08. Within subsets of ASD studies, the current rate of RCT growth was 1.91. TBI studies demonstrated a lower rate of RCT growth (0.79) and similarly slowing rates of diagnostic (0.72) and total (0.69) studies. Notably, the rate of systematic reviews of TBI continues to increase (1.17). This disparity of systematic review growth to RCT growth was not unique to TBI and was seen across all diagnoses other than ASD.

Conclusion: TBI research is second only to ASD research in its current rate of growth. However, the growth rate of publication of new RCTs, diagnostic studies, and total studies is slowing. Meanwhile, the rate of systematic review publications continues to increase. Although this is in line with findings seen across top neurology research fields, it suggests that a subset of information is being repeated at a rate higher than warranted by the development of supporting studies. This discrepancy quantifies the military need for continued funding of original TBI research as we work toward developing improved diagnostic and treatment modalities.
Disclaimers: The views expressed are those of the author(s)/presenter(s) and do not reflect the official views or policy of the Department of Defense or its Components.