

JENNIFER L. THOMPSON, MPH

I use data, statistics and communication to foster understanding and improvement of the world around me.
I primarily code in R and value constant learning and development of new skills.

CONTACT

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EDUCATION

May 2005: *Master of Public Health in Biostatistics*

University of North Carolina at Chapel Hill, Department of Biostatistics, Chapel Hill, NC

Master's paper: "A Meta-Analytic Comparison of ACR 20 and ACR 50 as Criteria for Treatment Comparisons in Rheumatoid Arthritis Studies." Adviser: Gary G. Koch, PhD.

May 2002: *Bachelor of Arts in Mathematics*

Harding University, Searcy, AR. Minors in English, Spanish, and management.

EMPLOYMENT HISTORY

September 2015 - Present: **Biostatistician IV**

Department of Biostatistics, Vanderbilt University Medical Center, Nashville, TN

I primarily work with the VUMC Center for Critical Illness, Brain Dysfunction and Survivorship (CIBS Center). Our multidisciplinary team is one of the top research organizations in this area, working to describe, understand, and improve in-hospital and post-hospital outcomes among our most critically ill patients. My role involves study design and development of research questions; database design and construction; monitoring and management of prospective data collection; development and execution of statistical analysis plans; communication and visualization of analysis results; and contributing to research manuscripts for dissemination of study results.

I was one of the first two staff members promoted to the senior staff position of biostatistician IV. I work at a high level of independence alongside a biostatistics faculty supervisor to manage the needs of approximately ten principal investigators, with multiple prospective studies enrolling and several analysis projects in progress at any given time.

May 2008 - August 2015: **Biostatistician III**

Department of Biostatistics, Vanderbilt University Medical Center, Nashville, TN

Position included supervision and mentorship of database managers and more junior biostatisticians.

June 2005 - April 2008: **Biostatistician II**

Department of Biostatistics, Vanderbilt University Medical Center, Nashville, TN

May 2004 - May 2005: **Graduate Student Intern**

GlaxoSmithKline, Research Triangle Park, NC

August 2002 - May 2005: **Graduate Research Assistant**

Biometric Consulting Laboratory, University of North Carolina, Chapel Hill, NC

PROFESSIONAL ACTIVITIES & ORGANIZATIONS

Memberships

- American Statistical Association: September 2002 - present
- International Biometric Society: September 2005 - December 2012, February 2017 - present

Awards

- 2018, 2015: Linda Stewart **Award for Applied Analysis**
Award is given to department staff member judged to have the best applied analysis report, based on criteria of methodology, communication, visuals, and organization.
- 2018: **Travel awardee, rstudio::conf 2018**
Received scholarship including a two-day training workshop as well as conference registration & travel.
- 2017: **Travel awardee, rOpenSci Unconference**
The unconference is a two-day event where invited participants from multiple domains and countries collaborate on open data/open source projects related to R.

Intramural

- 2017 - present: Member, **Institute of Medicine and Public Health Staff Council**
Nominated by department leadership for inaugural committee membership.
- 2016 - present: **Studio Expert**, Vanderbilt Institute for Clinical and Translational Research (VICTR)
- 2012 - 2018: Lead statistician for weekly biostatistics clinics for VUMC community.
- 2007 - 2018: Member, VUMC Biostatistics **staff recruitment committee Chair**, April 2007-April 2010. Coordinated recruiting for master's-level biostatisticians during the department's busiest recruiting years to date.
- 2017: **Organizer**, VUMC Biostatistics book club
- 2016 - 2017: Member, VUMC Biostatistics working group on **web collaboration**
- 2007 - 2010: Member, VUMC Biostatistics **staff allocation committee**

Extramural

- 2018: **Reviewer**, *Journal of Open Source Software*
- 2016 - present: **Co-founder, R-Ladies Nashville**
R-Ladies is a worldwide organization to promote gender diversity in the R community. Lucy D'Agostino McGowan and I founded the Nashville chapter. As a co-organizer, I facilitate the building of our community, organize speakers and sessions, and teach workshops.
- 2015 - 2018: **Lead Statistician, Society of Critical Care Medicine PCOR-ICU Collaborative**
The Collaborative is a nationwide group of 65 adult and eight pediatric ICUs working to improve clinical care for critically ill patients of all ages. I led data analysis and interpretation to describe changes in clinical practice over time, motivating implementation of best practices, and worked with clinical faculty to publish outcomes of this intervention.
- 2017 - present: Member of the **rOpenSci** community, including review of the **skimr** package and participation in the 2017 and 2018 unconferences.
- 2017 - present: **NASA Datanaut**, Fall 2017 cohort
- 2017: **Project Lead, Data for Democracy**
I co-lead a project looking at US prescription drug spending and related data, managing a team of volunteers with a wide variety of skills and interests.

TEACHING ACTIVITY

- “Data Visualization Using `ggplot2`.” Invited workshop at Osaka City University, June 6, 2018. *Introduction to the `ggplot2` package and the grammar of graphics.*
- “Reproducible Research with RMarkdown.” Invited workshop at Osaka City University, June 5, 2018. *Rationale for reproducible research, with detailed tutorial for reproducible research documents in RMarkdown with HTML output.*
- “Clinical Data Monitoring Using R + REDCap.” Invited workshop at Osaka City University, June 4, 2018. *Overview and tutorial of VUMC CIBS Center data cleaning and monitoring process.*
- “Introduction to the `purrr` package.” Initially presented at R-Ladies Nashville. November 13, 2017. *Introduction to the concept of iteration and efficient iteration in R using the `purrr` package.*
- **Thompson JL**, Chandrasekhar R, Patel M. “Handling Bias from Missing Delirium Assessments.” American Delirium Society Annual Meeting, Nashville, TN, June 6, 2017. *Why missing delirium data is a particular problem, and proactive and practical ways to handle it.*
- “Introduction to Reproducible Reporting with R Notebooks.” R-Ladies Nashville. November 7, 2016. *Reasons to use reproducible reporting and specific pros and cons of R Notebook format.*
- “Plotting with `ggplot2`: The Basics.” Vanderbilt University Department of Biostatistics Statistical Computing Series. March 2013. *“Thought process,” syntax, and capabilities of R’s `ggplot2` graphics package.*
- “`ggplot2`: An Introduction to the Basics.” Vanderbilt University Department of Biostatistics Statistical Computing Series. June 16, 2011. *Basic syntax and operations of R’s `ggplot2` graphics package.*
- “Power in the Case of Extreme Bimodal Data: Simulations from Planet Critical Care.” Vanderbilt University Department of Biostatistics Continuing Education Series. December 16, 2010. *Power and type I error observed when analyzing extremely bimodal data using linear, proportional odds, negative binomial, and quantile regression.*
- “Statistical Reporting: Motivation, Tips and Ideas.” Vanderbilt University Department of Biostatistics Translational Statisticians’ Retreat. February 19, 2010. *Rationale behind complete statistical reports and suggestions for improving writing, format and graphics.*
- “Sample Size: What You Need to Know.” Vanderbilt University Clinical Research Center Skills Workshop. June 19, 2009. *Questions to answer and information to gather prior to calculating sample size, and how to calculate \mathcal{E} include sample sizes in a successful grant application.*
- “Bootstrapping a Confidence Interval for a Difference in Means.” Vanderbilt University MS Statisticians Meeting. October 18, 2007. *Rationale and methodology for using bootstrap methods to calculate a confidence interval for a difference in means.*

PRESENTATIONS AND PUBLICATIONS

Presentations

- **Thompson JL**. “The Statistician as Project Manager: Strategies for Success & Serenity.” Women in Statistics & Data Science, Cincinnati, OH, October 17, 2018. *Project management strategies for statisticians and data scientists.*
- **Thompson JL**. “The Life & Times of a Reproducible Clinical Project in R.” Invited talk at R/Medicine, New Haven, CT, September 8, 2018. *Tools and strategies for reproducible research and related practices in R.*

- **Thompson JL**, Chandrasekhar R. “Analyzing Summary Variables in the Presence of Partially Missing Longitudinal Data.” Joint Statistical Meetings, Vancouver, BC, July 30, 2018. *Advantages and performance of four strategies for summarizing and analyzing partially missing longitudinal data.*
- **Thompson JL**. “Introduction to the `purrr` package.” R-Ladies Nashville, Nashville, TN, November 13, 2017. *Introduction to the concept of iteration and how to do this in R using the purrr package. Also listed under Teaching Activities.* Invited to give this talk at Axial Healthcare’s Research & Development Journal Club, November 2017, and at the inaugural meeting of R-Ladies Louisville, April 2018.
- Bryan J, Cetinkaya-Rundel M, D’Agostino McGowan L, de Queiroz G, Dogucu M, Scranton K, **Thompson J**. “WSDS R-Ladies Panel: Improving Gender Diversity in a Male-Dominated Community.” Women in Statistics & Data Science Conference 2017, La Jolla, CA, October 21, 2017. *Discussion of motivation for and experiences in starting local groups supporting women in learning, teaching, and using R.*
- **Thompson JL**, D’Agostino McGowan L. “Ideas and Lessons from the 2017 rOpenSci Unconf.” *Description of and ideas from rOpenSci’s 2017 unconf, with application to possible local implementation.*
- **Thompson JL**, Chandrasekhar R, Patel M. “Handling Bias from Missing Delirium Assessments.” American Delirium Society Annual Meeting, Nashville, TN, June 6, 2017. *Why missing delirium data is a particular problem, and proactive and practical ways to handle it. Also listed under Teaching Activities.*
- **Thompson JL**, Chandrasekhar R. “Multinomial Regression for Correlated Data Using the Bootstrap in R.” Joint Statistical Meetings, Seattle, WA, August 9, 2015. *Presentation of the ClusterBootMultinom package.*
- **Thompson JL**, Shintani AK. “Power in the Case of Extreme Bimodal Data.” Poster presentation at the Joint Statistical Meetings, Vancouver, BC, Canada, August 3, 2010.

Peer-Reviewed Publications

1. Girard TD, Exline MC, Carson SS, Hough CL, Rock P, Gong MN, Douglas IS, Malhotra, A, Owens RL, Feinstein DJ, Khan B, Pisani MA, Hyzy RC, Schmidt GA, Schweickert WD, Duncan Hite R, Bowton DL, Masica AL, **Thompson JL**, Chandrasekhar R, Pun BT, Strength C, Boehm LM, Jackson JC, Pandharipande PP, Brummel NE, Hughes CG, Patel MB, Stollings JL, Bernard GR, Dittus RS, and Ely EW for the MIND-USA Investigators. “Haloperidol and Ziprasidone for Treatment of Delirium in Critical Illness.” *New England Journal of Medicine*, Epub ahead of print, 2018 Oct 22. DOI: 10.1056/NEJMoa1808217; PMID: 30346242
2. Pun BT, Balas MC, Barnes-Daly MA, **Thompson JL**, Aldrich M, Barr J, Byrum D, Carson SS, Devlin JW, Engel HJ, Esbrook CL, Hargett KD, Harmon L, Hielsberg C, Jackson JC, Kelly TL, Kumar V, Millner L, Morse A, Perme CS, Posa PJ, Puntillo KA, Schweickert WD, Stollings JL, Tan A, D’Agostino McGowan L, Ely EW. “Caring for Critically Ill Patients with the ABCDEF Bundle: Results of the ICU Liberation Collaborative in Over 15,000 Adults.” *Critical Care Medicine*, Epub ahead of print, 2018 Oct 18. DOI: 10.1097/CCM.0000000000003482; PMID: 30339549
3. Marra A, Pandharipande PP, Girard TD, Patel MB, Hughes CG, Jackson JC, **Thompson JL**, Chandrasekhar R, Ely EW, Brummel NE. “Cooccurrence of Post-Intensive Care Syndrome Problems Among 406 Survivors of Critical Illness.” *Critical Care Medicine*, 2018 Sep; 46(9):1393-1401. DOI: 10.1097/CCM.0000000000003218; PMID: 29787415
4. Stollings JL, **Thompson JL**, Ferrell BA, Scheinin M, Wilkinson GR, Hughes CG, Shintani AK, Ely EW, Girard TD, Pandharipande PP, Patel MB. “Sedative Plasma Concentrations and Delirium Risk in Critical Illness.” *Annals of Pharmacotherapy*, 2018 Jun; 52(6):513-521. DOI: 10.1177/1060028017753480; PMID: 29363356

5. Hayhurst CJ, Jackson JC, Archer KR, **Thompson JL**, Chandrasekhar R, Hughes CG. "Pain and Its Long-term Interference of Daily Life After Critical Illness." *Anesthesia & Analgesia*, 2018 Sep; 127(3):690-697. DOI: 10.1213/ANE.0000000000003358; PMID: 29649027
6. Hughes CG, Patel MB, Brummel NE, **Thompson JL**, McNeil JB, Pandharipande PP, Jackson JC, Chandrasekhar R, Ware LB, Ely EW, Girard TD. "Relationships between Markers of Neurologic and Endothelial Injury during Critical Illness and Long-Term Cognitive Impairment and Disability." *Intensive Care Medicine*, 2018 Mar; 44(3):345-355. DOI: 10.1007/s00134-018-5120-1; PMID: 29523900
7. Girard TD, **Thompson JL**, Pandharipande PP, Brummel NE, Jackson JC, Patel MB, Hughes CG, Chandrasekhar R, Pun BT, Boehm LM, Elstad MR, Goodman RB, Bernard GR, Dittus RS, Ely EW. "Clinical Phenotypes of Delirium during Critical Illness and Severity of Subsequent Long-Term Cognitive Impairment: A Prospective Cohort Study." *Lancet Respiratory Medicine*, 2018 Mar; 6(3):213-222. DOI: 10.1016/S2213-2600(18)30062-6; PMID: 29508705
8. Brummel NE, Boehm LM, Girard TD, Pandharipande PP, Jackson JC, Hughes CG, Patel MB, Han JH, Vasilevskis EE, **Thompson JL**, Chandrasekhar R, Bernard GR, Dittus RS, Ely EW. "Subsyndromal Delirium and Institutionalization Among Patients With Critical Illness." *American Journal of Critical Care*, 2017 Nov; 26(6):447-455. DOI: 10.4037/ajcc2017263; PMID: 29092867
9. Wilson JE, Carlson R, Duggan MC, Pandharipande PP, Girard TD, Wang L, **Thompson JL**, Chandrasekhar R, Francis A, Nicolson SE, Dittus RS, Heckers S, Ely EW for the Delirium and Catatonia (DeCat) Prospective Cohort Investigation. "Delirium and Catatonia in Critically Ill Patients: the DeCat prospective cohort investigation." *Critical Care Medicine*, 2017 Aug 24. DOI: 10.1097/CCM.0000000000002642; PMID: 28841632
10. Smith HAB, Gangopadhyay M, Goben CM, Jacobowski NL, Chestnut MH, **Thompson JL**, Chandrasekhar R, Williams SR, Griffith K, Ely EW, Fuchs DC, Pandharipande PP. "Delirium and Benzodiazepines Associated with Prolonged ICU Stay in Critically Ill Infants and Young Children." *Critical Care Medicine*, 2017 Sep; 45(9):1427-1435. DOI: 10.1097/CCM.0000000000002515; PMID: 28594681
11. Brummel NE, Bell SP, Girard TD, Pandharipande PP, Jackson JC, Morandi A, **Thompson JL**, Chandrasekhar R, Bernard GR, Dittus RS, Gill TM, Ely EW. "Frailty and Subsequent Disability and Mortality Among Patients With Critical Illness." *American Journal of Respiratory and Critical Care Medicine*, 2017 Jul 1; 196(1):64-72. DOI: 10.1164/rccm.201605-0939OC; PMID: 27922747
12. Hughes CG, Patel MB, Jackson JC, Girard TD, Geevarghese SK, Norman BC, **Thompson JL**, Chandrasekhar R, Brummel NE, May AK, Elstad MR, Wasserstein ML, Goodman RB, Moons KG, Dittus RS, Ely EW, Pandharipande PP; MIND-ICU, BRAIN-ICU investigators. "Surgery and Anesthesia Exposure Is Not a Risk Factor for Cognitive Impairment After Major Noncardiac Surgery and Critical Illness." *Annals of Surgery*, 2017 Jun; 265(6):1126-1133. DOI:10.1097/SLA.0000000000001885; PMID: 27433893
13. Norman BC, Jackson JC, Graves JA, Girard TD, Pandharipande PP, Brummel NE, Wang L, **Thompson JL**, Chandrasekhar R, Ely EW. "Employment Outcomes After Critical Illness: An Analysis of the Bringing to Light the Risk Factors and Incidence of Neuropsychological Dysfunction in ICU Survivors Cohort." *Critical Care Medicine*, 2016 Nov; 44(11):2003-2009. DOI:10.1097/CCM.0000000000001849; PMID: 27171492
14. Hughes CG, Pandharipande PP, **Thompson JL**, Chandrasekhar R, Ware LB, Ely EW, Girard TD. "Endothelial Activation and Blood-Brain Barrier Injury as Risk Factors for Delirium in Critically Ill Patients." *Critical Care Medicine*, 2016 Sep; 44(9):e809-17. DOI:10.1097/CCM.0000000000001739; PMID: 27088157
15. Patel MB, Jackson JC, Morandi A, Girard TD, Hughes CG, **Thompson JL**, Kiehl AL, Elstad MR, Wasserstein ML, Goodman RB, Beckham JC, Chandrasekhar R, Dittus RS, Ely EW, Pandharipande PP. "Incidence and Risk Factors for Intensive Care Unit-related Post-traumatic Stress Disorder in Veterans and Civilians." *American Journal of Respiratory and Critical Care Medicine*, 2016 Jun 15; 193(12):1373-81. DOI:10.1164/rccm.201506-1158OC; PMID: 26735627

16. Smith HA, Gangopadhyay M, Goben CM, Jacobowski NL, Chestnut MH, Savage S, Rutherford MT, Denton D, **Thompson JL**, Chandrasekhar R, Acton M, Newman J, Noori HP, Terrell MK, Williams SR, Griffith K, Cooper TJ, Ely EW, Fuchs DC, Pandharipande PP. "The Preschool Confusion Assessment Method for the ICU: Valid and Reliable Delirium Monitoring for Critically Ill Infants and Children." *Critical Care Medicine*, 2016 Mar; 44(3):592-600. DOI:10.1097/CCM.0000000000001428; PMID: 26565631
17. Jackson JC, Morandi A, Girard TD, Merkle K, Graves AJ, **Thompson JL**, Shintani AK, Gunther ML, Cannistraci CJ, Rogers BP, Gore JC, Warrington HJ, Ely EW, Hopkins RO; VISualizing Icu SurvivOrs Neuroradiological Sequelae (VISIONS) Investigation. "Functional Brain Imaging in Survivors of Critical Illness: A Prospective Feasibility Study and Exploration of the Association between Delirium and Brain Activation Patterns." *Journal of Critical Care*, 2015 Jun; 30(3):653.e1-7. DOI:10.1016/j.jcrc.2015.01.017; PMID: 25769901
18. Inoue S, Vasilevskis EE, Pandharipande PP, Girard TD, Graves AJ, **Thompson JL**, Shintani A, Ely EW. "The Impact of Lymphopenia on Delirium in ICU Patients." *PLoS One*, 2015 May 20; 10(5). DOI:10.1371/journal.pone.0126216; PMID: 25992641
19. Morandi A, Hughes CG, **Thompson JL**, Pandharipande PP, Shintani AK, Vasilevskis EE, Han JH, Jackson JC, Laskowitz DT, Bernard GR, Ely EW, Girard TD. "Statins and Delirium during Critical Illness: A Multicenter, Prospective Cohort Study." *Critical Care Medicine*, 2014 Aug; 42(8). DOI:10.1097/CCM.0000000000000398; PMID: 24810528
20. Jackson JC, Pandharipande PP, Girard TD, Brummel NE, **Thompson JL**, Hughes CG, Pun BT, Vasilevskis EE, Morandi A, Shintani AK, Hopkins RO, Bernard GR, Dittus RS, Ely EW; BRAIN-ICU study investigators. "Depression, Post-Traumatic Stress Disorder, and Functional Disability in Survivors of Critical Illness in the BRAIN-ICU Study: A Longitudinal Cohort Study." *Lancet Respiratory Medicine*, 2014 May; 2(5):369-79. DOI:10.1016/S2213-2600(14)70051-7; PMID: 24815803
21. Brummel NE, Jackson JC, Pandharipande PP, **Thompson JL**, Shintani AK, Dittus RS, Gill TM, Bernard GR, Ely EW, Girard TD. "Delirium in the ICU and Subsequent Long-Term Disability among Survivors of Mechanical Ventilation." *Critical Care Medicine*, 2014 Feb; 42(2):369-77. DOI:10.1097/CCM.0b013e3182a645bd; PMID: 24158172
22. Pandharipande PP, Girard TD, Jackson JC, Morandi A, **Thompson JL**, Pun BT, Brummel NE, Hughes CG, Vasilevskis EE, Shintani AK, Moons KG, Geevarghese SK, Canonico A, Hopkins RO, Bernard GR, Dittus RS, Ely EW; BRAIN-ICU Study Investigators. "Long-Term Cognitive Impairment after Critical Illness." *New England Journal of Medicine*, 2013 Oct 3; 369(14):1306-16. DOI:10.1056/NEJMoa1301372; PMID: 24088092
23. Watson PL, Pandharipande P, Gehlbach BK, **Thompson JL**, Shintani AK, Dittus RS, Bernard GR, Malow BA, Ely EW. "Atypical Sleep in Ventilated Patients: Empirical Electroencephalography Findings and the Path toward Revised ICU Sleep Scoring Criteria." *Critical Care Medicine*, 2013 Aug; 41(8):1958-67. DOI:10.1097/CCM.0b013e31828a3f75; PMID: 23863228
24. Morandi A, Vasilevskis E, Pandharipande PP, Girard TD, Solberg LM, Neal EB, Koestner T, Torres RE, **Thompson JL**, Shintani AK, Han JH, Schnelle JF, Fick DM, Ely EW, Kripalani S. "Inappropriate Medication Prescriptions in Elderly Adults Surviving an Intensive Care Unit Hospitalization." *Journal of the American Geriatric Society*, 2013 Jul; 61(7):1128-34. DOI:10.1111/jgs.12329; PMID: 23855843
25. McPherson JA, Wagner CE, Boehm LM, Hall JD, Johnson DC, Miller LR, Burns KM, **Thompson JL**, Shintani AK, Ely EW, Pandharipande PP. "Delirium in the Cardiovascular ICU: Exploring Modifiable Risk Factors." *Critical Care Medicine*, 2013 Feb; 41(2): 405-413. DOI:10.1097/CCM.0b013e31826ab49b; PMID: 23263581
26. Hughes CG, Morandi A, Girard TD, Riedel B, **Thompson JL**, Shintani AK, Pun BT, Ely EW, Pandharipande PP. "Association between Endothelial Dysfunction and Acute Brain Dysfunction during Critical Illness." *Anesthesiology*, 2013 Mar; 118(3):631-9. DOI:10.1097/ALN.0b013e31827bd193; PMID: 23263016

27. Girard TD, Ware LB, Bernard GR, Pandharipande PP, **Thompson JL**, Shintani AK, Jackson JC, Dittus RS, Ely EW. "Associations of Markers of Inflammation and Coagulation with Delirium during Critical Illness." *Intensive Care Medicine*, 2012 Dec; 38(12): 1965-73. DOI:10.1007/s00134-012-2678-x; PMID: 22903241
28. Seymour CW, Pandharipande PP, Koestner T, Hudson LD, **Thompson JL**, Shintani AK, Ely EW, Girard TD. "Diurnal Sedative Changes during Intensive Care: Impact on Liberation from Mechanical Ventilation and Delirium." *Critical Care Medicine*, 2012 Oct; 40(10): 2788-96. DOI:10.1097/CCM.0b013e31825b8ade; PMID: 22824928
29. Gunther ML, Morandi A, Krauskopf E, Pandharipande P, Girard TD, Jackson JC, **Thompson JL**, Shintani AK, Geevarghese S, Miller RR 3rd, Canonico A, Merkle K, Cannistraci CJ, Rogers BP, Gatenby JC, Heckers S, Gore JC, Hopkins RO, Ely EW; for the VISIONS Investigation (VISualizing Icu SurvivOrs Neuroradiological Sequelae). "The Association between Brain Volumes, Delirium Duration, and Cognitive Outcomes in Intensive Care Unit Survivors: The VISIONS Cohort Magnetic Resonance Imaging Study." *Critical Care Medicine*, 2012 July; 40(7): 2022-32. DOI:10.1097/CCM.0b013e318250acc0; PMID: 22710202
30. Morandi A, Rogers BP, Gunther ML, Merkle K, Pandharipande P, Girard TD, Jackson JC, **Thompson JL**, Shintani AK, Geevarghese S, Miller RR 3rd, Canonico A, Cannistraci CJ, Gore JC, Ely EW, Hopkins RO; for the VISIONS Investigation (VISualizing Icu SurvivOrs Neuroradiological Sequelae). "The Relationship between Delirium Duration, White Matter Integrity, and Cognitive Impairment in Intensive Care Unit Survivors as Determined by Diffusion Tensor Imaging: The VISIONS Prospective Cohort Magnetic Resonance Imaging Study." *Critical Care Medicine*, 2012 July; 40(7): 2182-89. DOI:10.1097/CCM.0b013e318250acdc; PMID: 22584766
31. Jackson JC, Ely EW, Morey MC, Anderson VM, Denne LB, Clune J, Siebert CS, Archer KR, Torres R, Janz D, Schiro E, Jones J, Shintani AK, Levine B, Pun BT, **Thompson JL**, Brummel NE, Hoenig H. "Cognitive and Physical Rehabilitation of Intensive Care Unit Survivors: Results of the RETURN Randomized Controlled Pilot Investigation." *Critical Care Medicine*, 2012 April; 40(4): 1088-97. DOI:10.1097/CCM.0b013e3182373115; PMID: 22080631
32. Adams Wilson JR, Morandi A, Girard TD, **Thompson JL**, Boomershine CS, Shintani AK, Ely EW, Pandharipande PP. "The Association of the Kynurenine Pathway of Tryptophan Metabolism with Acute Brain Dysfunction during Critical Illness." *Critical Care Medicine*, 2012 Mar; 40(3):835-41. DOI:10.1097/CCM.0b013e318236f62d; PMID: 22080637
33. Morandi A, Vasilevskis EE, Pandharipande PP, Girard TD, Solberg LM, Neal EB, Koestner T, Torres R, **Thompson JL**, Shintani AK, Han JH, Schnelle J, Fick DM, Ely EW, Kripalani S. "Inappropriate Medications in Elderly ICU Survivors: Where to Intervene?" *Archives of Internal Medicine*, 2011 June 13; 171(11):1032-4. DOI:10.1001/archinternmed.2011.233; PMID: 23855843
34. McGrane S, Girard T, **Thompson JL**, Shintani A, Woodworth A, Ely EW, Pandharipande P. "Procalcitonin and C-Reactive Protein Levels at Admission as Predictors of Duration of Acute Brain Dysfunction in Critically Ill Patients." *Critical Care*, 2011; 15(2):R78. DOI:10.1186/cc10070; PMID: 21366899
35. Vasilevskis E, Morandi A, Boehm L, Pandharipande P, Girard T, Jackson J, **Thompson JL**, Shintani A, Gordon S, Pun BT, Ely EW. "Delirium and Sedation Recognition Using Validated Instruments: Reliability of Bedside ICU Nurses from 2007 to 2010." *Journal of the American Geriatrics Society*, 2011 Nov; 59 Suppl 2:S249-55. DOI:10.1111/j.1532-5415.2011.03673.x; PMID: 22091569
36. Morandi A, Gunther ML, Pandharipande P, Jackson JC, **Thompson JL**, Shintani A, Ely EW, Girard TD. "Insulin-Like Growth Factor-1 and Acute Brain Dysfunction in Critically Ill Mechanically Ventilated Patients: A Preliminary Investigation." *International Psychogeriatrics*, 2011 Sep; 23(7):1175-81. DOI:10.1017/S1041610210002486; PMID: 21294938

37. Agarwal V, O'Neill PJ, Cotton BA, Pun BT, Haney S, **Thompson JL**, Kassebaum N, Shintani A, Guy J, Ely EW, Pandharipande P. "Prevalence and Risk Factors for Development of Delirium in Burn Intensive Care Unit Patients." *Journal of Burn Care and Research*, 2010 September-October; 31(5):706-15. DOI:10.1097/BCR.0b013e3181eebee9; PMID: 20647937
38. Girard T, Jackson J, Pandharipande P, Pun BT, **Thompson JL**, Shintani A, Gordon S, Dittus R, Bernard G, Ely EW. "Delirium as a Predictor of Long-Term Cognitive Impairment in Survivors of Critical Illness." *Critical Care Medicine*, 2010 July; 38(7):1513-20. DOI:10.1097/CCM.0b013e3181e47be1; PMID: 20473145
39. Jackson J, Girard T, Gordon S, **Thompson JL**, Shintani A, Thomason J, Pun BT, Canonico A, Dunn J, Bernard G, Dittus R, Ely EW. "Long-Term Cognitive and Psychological Outcomes in the Awakening and Breathing Controlled Trial." *American Journal of Respiratory and Critical Care Medicine*, 2010 July 15; 182(2):183-91. DOI:10.1164/rccm.200903-0442OC; PMID: 20299535
40. Pandharipande PP, Sanders RD, Girard TD, McGrane S, **Thompson JL**, Shintani AK, Herr DL, Maze M, Ely EW.; MENDS Investigators. "Effect of Dexmedetomidine versus Lorazepam on Outcome in Patients with Sepsis: An a priori-Designed Analysis of the MENDS Randomized Controlled Trial." *Critical Care*, 2010; 14(2):R38. DOI:10.1186/cc8916; PMID: 18073360
Designated a "highly accessed article" by Critical Care and a "Must Read" by Faculty of 1000 Medicine, which identifies the most important articles published in medicine based on recommendations of over 2000 peer-nominated leading researchers and clinicians.
41. Girard T, Pandharipande P, Carson S, Schmidt G, Wright P, Canonico A, Pun BT, **Thompson JL**, Shintani A, Meltzer H, Bernard G, Dittus R, Ely EW, MIND Trial Investigators. "Feasibility, Efficacy, and Safety of Antipsychotics for Intensive Care Unit Delirium: The MIND Randomized, Placebo-Controlled Trial." *Critical Care Medicine*, 2010 February; 38(2):428-37. PMID: PMC3645269
Recommended by Faculty of 1000 Medicine, which identifies the most important articles published in medicine based on recommendations of over 2000 peer-nominated leading researchers and clinicians.
42. Pandharipande P, Morandi A, Adams J, Girard T, **Thompson JL**, Shintani A, Ely EW. "Plasma Tryptophan and Tyrosine Levels are Independent Risk Factors for Delirium in Critically Ill Patients." *Intensive Care Medicine*, 2009 November; 35(11): 1886-92. DOI:10.1007/s00134-009-1573-6; PMID: 19588122
43. Pandharipande P, Cotton BA, Shintani A, **Thompson JL**, Pun BT, Morris JA Jr., Dittus R, Ely EW. "Prevalence and Risk Factors for Development of Delirium in Surgical and Trauma Intensive Care Unit Patients." *Journal of Trauma*, 2008 July; 65(1): 34-41. DOI:10.1097/TA.0b013e31814b2c4d; PMID: 18580517
44. Girard TD, Kress JP, Fuchs BD, Thomason JW, Schweickert WD, Pun BT, Taichman DB, Dunn JG, Pohlman AS, Kinniry PA, Jackson JC, Canonico AE, Light RW, Shintani AK, **Thompson JL**, Gordon SM, Hall JB, Dittus RS, Bernard GR, Ely EW. "Efficacy and Safety of a Paired Sedation and Ventilator Weaning Protocol for Mechanically Ventilated Patients in Intensive Care (Awakening and Breathing Controlled Trial): A Randomised Controlled Trial." *Lancet*, 2008 January 12; 371(9607): 126-34. DOI:10.1016/S0140-6736(08)60105-1; PMID: 18191684
Recognized by the Faculty of 1000 Medicine in April 2009 as an "All Time Top Ten by F1000 Factor" paper in critical care and emergency medicine, based on the number and ratings of evaluations by the Faculty of 1000 Medicine.
45. Pandharipande PP, Pun BT, Herr DL, Maze M, Girard TD, Miller RR, Shintani AK, **Thompson JL**, Jackson JC, Deppen SA, Stiles RA, Dittus RS, Bernard GR, Ely EW. "Effect of Sedation with Dexmedetomidine vs Lorazepam on Acute Brain Dysfunction in Mechanically Ventilated Patients: The MENDS Randomized Controlled Trial." *Journal of the American Medical Association*, 2007 December 12; 298(22): 2644-53. DOI:10.1001/jama.298.22.2644; PMID: 18073360

Designated a “Must Read” by Faculty of 1000 Medicine, which identifies the most important articles published in medicine based on recommendations of over 2000 peer-nominated leading researchers and clinicians.

46. Pandharipande P, Cotton BA, Shintani A, **Thompson JL**, Costabile S, Truman Pun B, Dittus R, Ely EW. “Motoric Subtypes of Delirium in Mechanically Ventilated Surgical and Trauma Intensive Care Unit Patients.” *Intensive Care Medicine*, 2007 October; 33(10): 1726-31. DOI:10.1007/s00134-007-0687-y; PMID: 17549455 *Featured in Intensive Care Medicine’s Year in Review for 2007.*
47. Chung C, **Thompson JL**, Koch G, Strand V, Amara I, and Pincus T. “Are American College of Rheumatology 50% Response Criteria (ACR 50) Superior to 20% Criteria (ACR20) to Distinguish Active Aggressive Treatment in Rheumatoid Arthritis Clinical Trials Reported Since 1997? A Meta-analysis of Discriminant Capacities.” *Annals of Rheumatic Diseases*, 2006 December; 65(12): 1206-7. DOI:10.1136/ard.2005.048975; PMID: 16504992

TECHNICAL & STATISTICAL KNOWLEDGE

I program primarily in R and have written two packages, currently available on Github:

- ClusterBootMultinom: streamlines process of multinomial regression using cluster bootstrapping (*this package will be undergoing some revamping, summer 2017*)
- JTHelpers: miscellaneous functions written by me and others that I use frequently; several are related to Frank Harrell’s rms package

I have also taught on workflows, reproducible research, data visualization, and general programming in R.

I use **RMarkdown**, knitr, and \LaTeX for reproducible reporting in PDF and HTML formats. I have experience with **Shiny**, Shiny dashboards (example) and flexdashboards (example).

I use **Git** for version control and **Github** for projects as appropriate, including some collaborative work.

My experience includes the following areas of statistical analysis:

- Regression modeling (linear, logistic, ordinal, negative binomial, zero-inflated, survival)
- Time-to-event outcomes, including time-varying covariates and competing risks
- Multiple imputation
- Bootstrapping
- Marginal structural models, inverse probability weighting, propensity scores
- Simulations
- Longitudinal data analysis

I have previously used SAS and C++. I work daily on Mac OS and Linux, and have experience on Windows.

CONTINUING EDUCATION

Short Courses and Tutorials:

- Data visualization workshop with Alberto Cairo, *Vanderbilt University Data Science Institute, September 2018*.
- Introduction to Bayesian Inference in Medicine Using Stan, *R/Medicine tutorial, New Haven, CT, September 2018. Instructor: Ben Goodrich*.
- Project Management Sequence, *Vanderbilt University Medical Center Enterprise Program Management Office, 2018*.
 - 101: Introduction to Project Management
 - 201: Capturing & Controlling Scope
- Regression Modeling Strategies, *Vanderbilt University, May 2017. Instructor: Frank Harrell. Also took previous versions in 2012, 2006*.
- Artificial Intelligence, Machine Learning and Precision Medicine, *ENAR, Washington, DC, 2017. Instructors: Haoda Fu and Yufeng Liu*.
- Statistical Issues in Comparative Effectiveness Research, *ENAR, Washington, DC, 2017. Instructor: Sharon-Lise Normand*.
- Biomedical Writing for Biostatisticians, *Vanderbilt University, November 2016. Instructor: Vivian Siegel*.
- Using Git and GitHub with R, RStudio, and RMarkdown, *UseR, Palo Alto, 2016. Instructor: Jenny Bryan*.
- Software Carpentry Workshop, *Vanderbilt University, August 2015. Instructors: Scott Burns, Daniel Fabbri, Chris Fonnesebeck, Will French*.
- Bayesian Methods and Computing for Data Analysis and Adaptive Clinical Trials, *Vanderbilt University, February 18, 2014. Instructor: Brad Carlin*.
- Analysis of Ordinal Categorical Data, *Joint Statistical Meetings, San Diego, August 2012. Instructor: Alan Agresti*.
- A Smattering of Stata: Fundamentals, Mechanics of Multilevel Models and Multiple Imputation, and Reproducible Research, *Vanderbilt University, June 25-26, 2012. Instructor: Bill Rising, StataCorp*.
- Getting the Most out of RStudio, *UseR, Nashville, 2012. Instructor: Josh Paulson*.
- Statistical Modeling in the R Context, *UseR, Nashville, 2012. Instructor: Bill Venables*.
- Fundamental Statistics Concepts in Presenting Data: Principles for Constructing Better Graphics, *Vanderbilt University, July 2010. Instructor: Rafe Donahue*.
- Analysis of Clinical Trials, *Joint Statistical Meetings, Salt Lake City, July 2007. Instructors: Christy Chuang-Stein, Alex Dmitrienko, Geert Molenberghs*.
- Applied Longitudinal Analysis, *Joint Statistical Meetings, Salt Lake City, July 2007. Instructor: Garrett Fitzmaurice*.
- Effective Scientific Writing, *Joint Statistical Meetings, Seattle, July 2006. Instructor: Judith Swan*.

Online Courses:

- Object-Oriented Programming in R, 2016 (*DataCamp; instructor: Richie Cotton*)
- Writing Functions in R, 2016 (*DataCamp; instructors: Hadley Wickham, Charlotte Wickham*)
- Regression Models, 2014 (*Coursera; instructor: Brian Caffo; part of the Johns Hopkins Data Science Specialization*)