



## Juliana Barr

Professor of Anesthesiology, Perioperative and Pain Medicine, Emerita

 NIH Biosketch available Online

### Bio

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#### BIO

Dr. Barr is currently a Professor Emerita of Anesthesiology in the University Medical Line at Stanford, and a Staff Anesthesiologist and Intensivist at the VA Palo Alto Medical Center. She has a Bachelors of Science Degree in Biomedical Engineering from the University of Southern California, and received her MD degree from Johns Hopkins. She is board certified in internal medicine, anesthesiology, and critical care medicine. After completing a post-doctoral research fellowship in clinical pharmacology at Stanford, Dr. Barr joined the Stanford faculty in the Department of Anesthesiology, Perioperative, and Pain Medicine, and became a Staff Anesthesiologist and Intensivist at the VA Palo Alto Health Care System in 1992. Dr. Barr's research interests include the mathematical modeling of the clinical pharmacology of sedatives and opioids commonly administered to ICU patients, and ICU outcomes research. Dr. Barr has published over 65 peer-reviewed manuscripts and book chapters. Dr. Barr has over 30 years of experience in critical care leadership, innovation, quality improvement, education, and research. She is passionate about improving the lives of critically ill patients.

Dr. Barr was the lead author of the Society of Critical Care Medicine's (SCCM) 2013 Clinical Practice Guidelines for the Management of Pain, Agitation, and Delirium in Adults Patients in the Intensive Care Unit. She is a founding member of the SCCM's ICU Liberation Campaign, and helped to create the ABCDEF Bundle to promote widespread adoption of these guidelines. Dr. Barr was a senior faculty member of the SCCM's ICU Liberation Campaign Collaborative, and co-authored a landmark study which demonstrated significant improvements in ICU patient outcomes following implementation of the ABCDEF Bundle. She is currently the Co-Chair of the SCCM's ICU Liberation Committee. Dr. Barr has previously participated in several national collaboratives to improve ICU patient care and outcomes, including the IHI's 100k Lives and the 5 Million Lives Campaigns. She also previously served as the Chair of the SCCM's Patient and Family Support Committee and the Ethics Committee. Dr. Barr is nationally recognized as a leader in critical care quality improvement research. As a Stanford faculty member, Dr. Barr co-founded the first intensivist-led ICU Team at the Palo Alto VA in 1993, and she created the VA ICU Nurse Practitioner Program there in 2011, the first of its kind nationally. She has served as the Medical Director of the VA Respiratory Therapy Department for over 25 years, and as the Medical Director of the VA ICU NP Program since its inception. Dr. Barr co-founded and served as the Director of the Stanford Critical Care Medical Student Core Clerkship for over 10 years, and is currently the Associate Clerkship Director. She has also been a member of the Stanford Faculty Senate, the Medical School Admissions Committee, and the Human Subjects Committee.

#### ACADEMIC APPOINTMENTS

- Emeritus Faculty - University Medical Line, Anesthesiology, Perioperative and Pain Medicine

#### ADMINISTRATIVE APPOINTMENTS

- Director, Critical Care Core Clerkship, Stanford University School of Medicine, (2005-2015)
- Associate Director, Critical Care Core Clerkship, Stanford University School of Medicine, (2015-2019)

## Research & Scholarship

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### CURRENT RESEARCH AND SCHOLARLY INTERESTS

- 1) Implementation of the ICU Pain, Agitation, and Delirium Clinical Practice Guidelines;
- 2) ICU Outcomes Research: ABCDEF Bundle, pain, sedation, delirium management, early mobility, ventilator weaning, family engagement
- 3) Clinical Pharmacology (i.e., pharmacokinetics, pharmacodynamics) of sedatives (eg, midazolam, lorazepam, propofol, dexmedetomidine) administered to ICU patients.

## Publications

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### PUBLICATIONS

- **Lessons Learned From a Systematic, Hospital-Wide Implementation of the ABCDEF Bundle: A Survey Evaluation.** *Critical care explorations*  
Brown, J. C., Ding, L., Querubin, J. A., Peden, C. J., Barr, J., Cobb, J. P.  
2023; 5 (11): e1007
- **Every Deep-Drawn Breath: A Critical Care Doctor on Healing, Recovery, and Transforming Medicine in the ICU (Book Review)** *CRITICAL CARE MEDICINE*  
Book Review Authored by: Segers, M., Barr, J.  
2022; 50 (11): E807-E808
- **Improving ABCDEF Bundle Compliance and Clinical Outcomes in the ICU: Randomized Control Trial to Assess the Impact of Performance Measurement, Feedback, and Data Literacy Training.** *Critical care explorations*  
Brown, J. C., Querubin, J. A., Ding, L., Mack, W. J., Chen-Chan, K., Perez, F., Barr, J., Peden, C. J., Cobb, J. P.  
2022; 4 (4): e0679
- **The Coming of Age of Implementation Science and Research in Critical Care Medicine.** *Critical care medicine*  
Barr, J., Paulson, S. S., Kamdar, B., Ervin, J. N., Lane-Fall, M., Liu, V., Kleinpell, R.  
2021; 49 (8): 1254-1275
- **The authors reply.** *Critical care medicine*  
Stollings, J. L., Devlin, J. W., Barr, J.  
2020; 48 (7): e630
- **Best Practices for Conducting Interprofessional Team Rounds to Facilitate Performance of the ICU Liberation (ABCDEF) Bundle.** *Critical care medicine*  
Stollings, J. L., Devlin, J. W., Lin, J. C., Pun, B. T., Byrum, D., Barr, J.  
2020; 48 (4): 562-570
- **Organizational Characteristics Associated With ICU Liberation (ABCDEF) Bundle Implementation by Adult ICUs in Michigan.** *Critical care explorations*  
Barr, J. n., Ghaferi, A. A., Costa, D. K., Hedlin, H. K., Ding, V. Y., Ross, C. n., Pun, B. T., Watson, S. R., Asch, S. M.  
2020; 2 (8): e0169
- **Acute Respiratory Distress Syndrome: Etiology, Pathogenesis, and Summary on Management.** *Journal of intensive care medicine*  
Kaku, S., Nguyen, C. D., Htet, N. N., Tintera, D., Barr, J., Paintal, H. S., Kuschner, W. G.  
2019: 885066619855021
- **Implementing the ABCDEF Bundle: Top 8 Questions Asked During the ICU Liberation ABCDEF Bundle Improvement Collaborative.** *Critical care nurse*  
Stollings, J. L., Devlin, J. W., Pun, B. T., Puntillo, K. A., Kelly, T., Hargett, K. D., Morse, A., Esbrook, C. L., Engel, H. J., Perme, C., Barnes-Daly, M. A., Posa, P. J., Aldrich, et al  
2019; 39 (1): 36-45
- **Common Challenges to Effective ABCDEF Bundle Implementation: The ICU Liberation Campaign Experience.** *Critical care nurse*  
Balas, M. C., Pun, B. T., Pasero, C., Engel, H. J., Perme, C., Esbrook, C. L., Kelly, T., Hargett, K. D., Posa, P. J., Barr, J., Devlin, J. W., Morse, A., Barnes-Daly, et al

2019; 39 (1): 46–60

- **Best Practices for Conducting Interprofessional Team Rounds to Facilitate Performance of the ICU Liberation (ABCDEF) Bundle.** *Critical care medicine*  
Stollings, J. L., Devlin, J. W., Lin, J. C., Pun, B. T., Byrum, D. n., Barr, J. n.  
2019
- **Lactic Acidosis and The Role of Sodium Bicarbonate: A Narrative Opinion.** *Shock (Augusta, Ga.)*  
Rudnick, M. R., Blair, G. J., Kuschner, W. G., Barr, J. n.  
2019
- **Caring for Critically Ill Patients with the ABCDEF Bundle: Results of the ICU Liberation Collaborative in Over 15,000 Adults.** *Critical care medicine*  
Pun, B. T., Balas, M. C., Barnes-Daly, M. A., Thompson, J. L., Aldrich, J. M., Barr, J., Byrum, D., Carson, S. S., Devlin, J. W., Engel, H. J., Esbrook, C. L., Hargett, K. D., Harmon, et al  
2018
- **Improving Health Care for Critically Ill Patients Using an Evidence-Based Collaborative Approach to ABCDEF Bundle Dissemination and Implementation** *WORLDVIEWS ON EVIDENCE-BASED NURSING*  
Barnes-Daly, M., Pun, B. T., Harmon, L. A., Byrum, D. G., Kumar, V. K., Devlin, J. W., Stollings, J. L., Puntillo, K. A., Engel, H. J., Posa, P. J., Barr, J., Schweickert, W. D., Esbrook, et al  
2018; 15 (3): 206–16
- **Delirium Assessment Tools for Use in Critically Ill Adults: A Psychometric Analysis and Systematic Review** *CRITICAL CARE NURSE*  
Gelinas, C., Berube, M., Chevrier, A., Pun, B. T., Ely, E., Skrobik, Y., Barr, J.  
2018; 38 (1): 38–49
- **Nonpharmacologic and Medication Minimization Strategies for the Prevention and Treatment of ICU Delirium: A Narrative Review.** *Journal of intensive care medicine*  
Blair, G. J., Mehmood, T., Rudnick, M., Kuschner, W. G., Barr, J.  
2018: 885066618771528
- **Reversal Agents: Naloxone, Flumazenil, and Sugammadex** *Complications in Anesthesia*  
Sauer, W., Barr, J.  
Elsevier.2018; 3rd: 387–390
- **Viral Respiratory Infections of Adults in the Intensive Care Unit.** *Journal of intensive care medicine*  
Nguyen, C., Kaku, S., Tuter, D., Kuschner, W. G., Barr, J.  
2016; 31 (7): 427-441
- **Protocols and Hospital Mortality in Critically Ill Patients: The United States Critical Illness and Injury Trials Group Critical Illness Outcomes Study** *CRITICAL CARE MEDICINE*  
Sevransky, J. E., Checkley, W., Herrera, P., Pickering, B. W., Barr, J., Brown, S. M., Chang, S. Y., Chong, D., Kaufman, D., Fremont, R. D., Girard, T. D., Hoag, J., Johnson, et al  
2015; 43 (10): 2076-2084
- **Invasive Mechanical Ventilation in California Over 2000-2009: Implications for Emergency Medicine.** *The western journal of emergency medicine*  
Mudumbai, S. C., Barr, J., Scott, J., Mariano, E. R., Bertaccini, E., Nguyen, H., Memtsoudis, S. G., Cason, B., Phibbs, C. S., Wagner, T.  
2015; 16 (5): 696-706
- **Liberating ICU Patients from Deep Sedation and Mechanical Ventilation-An Overview of Best Practices.** *ICU Liberation: The Power of Pain Control, Minimal Sedation, and Early Mobility*  
Barr, J.  
Society of Critical Care Medicine.2015: 11–29
- **Structure, Process, and Annual ICU Mortality Across 69 Centers: United States Critical Illness and Injury Trials Group Critical Illness Outcomes Study** *CRITICAL CARE MEDICINE*  
Checkley, W., Martin, G. S., Brown, S. M., Chang, S. Y., Dabbagh, O., Fremont, R. D., Girard, T. D., Rice, T. W., Howell, M. D., Johnson, S. B., O'Brien, J., Park, P. K., Pastores, et al  
2014; 42 (2): 344-356

- **Management of pain, agitation, and delirium in critically ill patients** *POLSKIE ARCHIWUM MEDYCYNY WEWNETRZNEJ-POLISH ARCHIVES OF INTERNAL MEDICINE*  
Pandharipande, P. P., Patel, M. B., Barr, J.  
2014; 124 (3): 114-123
- **The methodological approach used to develop the 2013 Pain, Agitation, and Delirium Clinical Practice Guidelines for adult ICU patients.** *Critical care medicine*  
Barr, J., Kishman, C. P., Jaeschke, R.  
2013; 41 (9): S1-15
- **Psychometric Analysis of Subjective Sedation Scales in Critically Ill Adults** *CRITICAL CARE MEDICINE*  
Robinson, B. R., Berube, M., Barr, J., Riker, R., Gelinias, C.  
2013; 41 (9): S16-S29
- **Contextual Issues Influencing Implementation and Outcomes Associated With an Integrated Approach to Managing Pain, Agitation, and Delirium in Adult ICUs** *CRITICAL CARE MEDICINE*  
Carrothers, K. M., Barr, J., Spurlock, B., Ridgely, M. S., Damberg, C. L., Ely, E. W.  
2013; 41 (9): S128-S135
- **Benzodiazepine Versus Nonbenzodiazepine-Based Sedation for Mechanically Ventilated, Critically Ill Adults: A Systematic Review and Meta-Analysis of Randomized Trials** *CRITICAL CARE MEDICINE*  
Fraser, G. L., Devlin, J. W., Worby, C. P., Alhazzani, W., Barr, J., Dasta, J. F., Kress, J. P., Davidson, J. E., Spencer, F. A.  
2013; 41 (9): S30-S38
- **The pain, agitation, and delirium care bundle: synergistic benefits of implementing the 2013 Pain, Agitation, and Delirium Guidelines in an integrated and interdisciplinary fashion.** *Critical care medicine*  
Barr, J., Pandharipande, P. P.  
2013; 41 (9): S99-115
- **The author replies.** *Critical care medicine*  
Barr, J.  
2013; 41 (7): e144-5
- **Reflecting on Use of the GRADE Process for Development of the 2013 PAD Guidelines** *SEMINARS IN RESPIRATORY AND CRITICAL CARE MEDICINE*  
Davidson, J. E., Tung, A., Kishman, C. P., Barr, J.  
2013; 34 (2): 262-271
- **Pain/Agitation/Delirium Preface** *SEMINARS IN RESPIRATORY AND CRITICAL CARE MEDICINE*  
Ely, E. W., Barr, J.  
2013; 34 (2): 151-152
- **A Validated Approach to Evaluating Psychometric Properties of Pain Assessment Tools for Use in Nonverbal Critically Ill Adults** *SEMINARS IN RESPIRATORY AND CRITICAL CARE MEDICINE*  
Gelinias, C., Puntillo, K. A., Joffe, A. M., Barr, J.  
2013; 34 (2): 153-168
- **Clinical Practice Guidelines for the Management of Pain, Agitation, and Delirium in Adult Patients in the Intensive Care Unit** *CRITICAL CARE MEDICINE*  
Barr, J., Fraser, G. L., Puntillo, K., Ely, E. W., Gelinias, C., Dasta, J. F., Davidson, J. E., Devlin, J. W., Kress, J. P., Davidson, J. E., Devlin, J. W., Kress, J. P., Joffe, et al  
2013; 41 (1): 263-306
- **Clinical practice guidelines for the management of pain, agitation, and delirium in adult patients in the intensive care unit: Executive summary** *AMERICAN JOURNAL OF HEALTH-SYSTEM PHARMACY*  
Barr, J., Fraser, G. L., Puntillo, K., Ely, E. W., Gelinias, C., Dasta, J. F., Davidson, J. E., Devlin, J. W., Kress, J. P., Joffe, A. M., Coursin, D. B., Herr, D. L., Tung, et al  
2013; 70 (1): 53-58
- **PAIN/AGITATION/DELIRIUM** *Semin Respir Crit Care Med*  
Ely, W., Barr, J.

2013; 34 (2): 151-272

- **Creating and Implementing the 2013 ICU Pain, Agitation and Delirium Guidelines for Adult ICU Patients** *Critical Care Medicine*  
Barr, J., Pandharipande, P.  
2013; 41 (9): S1-S145
- **Benzodiazepines** *Anesthetic Pharmacology*  
Rudolf, U., Davies, M., Barr, J.  
Cambridge University Press.2011; 2nd: 466–477
- **The use of clinical simulation systems to train critical care physicians.** *Journal of intensive care medicine*  
Lighthall, G. K., Barr, J.  
2007; 22 (5): 257-269
- **Clinical practice guidelines for support of the family in the patient-centered intensive care unit: American College of Critical Care Medicine Task Force 2004-2005** *CRITICAL CARE MEDICINE*  
Davidson, J. E., Powers, K., Hedayat, K. M., Tieszen, M., Kon, A. A., Shepard, E., Spuhler, V., Todres, I. D., Levy, M., Barr, J., Ghandi, R., Hirsch, G., Armstrong, et al  
2007; 35 (2): 605-622
- **Reversal agents** *Complications in Anesthesia*  
Barr, J.  
WB Saunders.2006; 2nd: 128–130
- **ICU Management for the 21st Century: How to Improve the Quality of ICU Care While Reducing Costs** *Pulmonary and Critical Care Update*  
Barr, J., Geller, E.  
2006; 20 (16)
- **Literature and medical interventions: An experiential course for undergraduates** *FAMILY MEDICINE*  
Shafer, A., Borkovi, T., Barr, J.  
2005; 37 (7): 469-471
- **Nutritional adequacy in patients receiving mechanical ventilation who are fed enterally** *AMERICAN JOURNAL OF CRITICAL CARE*  
O'Leary-Kelley, C. M., Puntillo, K. A., Barr, J., Stotts, N., Douglas, M. K.  
2005; 14 (3): 222-230
- **Methicillin-resistant Staphylococcus aureus infections in ICU patients.** *Anesthesiology clinics of North America*  
Sista, R. R., Oda, G., Barr, J.  
2004; 22 (3): 405-?
- **Outcomes in critically ill patients before and after the implementation of an evidence-based nutritional management protocol** *CHEST*  
Barr, J., Hecht, M., Flavin, K. E., Khorana, A., Gould, M. K.  
2004; 125 (4): 1446-1457
- **Sedatives, anxiolytics, amnestics: Clinical pharmacology of benzodiazepines** *Anesthetic Pharmacology: Physiologic principles and clinical practice*  
Rudolf, U., Crestani, F., Mohler, H., Barr, J., DeLorey, T., Lameh, J., Davies, M.  
Churchill-Livingstone Publishers.2004; 1st: 417–434
- **Use of a fully simulated intensive care unit environment for critical event management training for internal medicine residents** *CRITICAL CARE MEDICINE*  
Lighthall, G. K., Barr, J., Howard, S. K., Gellar, E., Sowb, Y., Bertacini, E., Gaba, D.  
2003; 31 (10): 2437-2443
- **Variability in antibiotic prescribing patterns and outcomes in patients with clinically suspected ventilator-associated pneumonia** *CHEST*  
Fowler, R. A., Flavin, K. E., Barr, J., Weinacker, A. B., Parsonnet, J., Gould, M. K.  
2003; 123 (3): 835-844
- **A double-blind, randomized comparison of IV lorazepam versus midazolam for sedation of ICU patients via a pharmacologic model** *Annual Meeting of the Society-for-Critical-Care-Medicine*  
Barr, J., Zomorodi, K., Bertaccini, E. J., Shafer, S. L., Geller, E.

LIPPINCOTT WILLIAMS & WILKINS.2001: 286–98

- **Propofol dosing regimens for ICU sedation based upon an integrated pharmacokinetic-pharmacodynamic model** *ANESTHESIOLOGY*  
Barr, J., Egan, T. D., Sandoval, N. F., Zomorodi, K., Cohane, C., Gambus, P. L., Shafer, S. L.  
2001; 95 (2): 324-333
- **Cation metabolism during propofol sedation with and without EDTA in patients with impaired renal function** *INTENSIVE CARE MEDICINE*  
Barr, J., Zaloga, G. P., Haupt, M. T., Weinmann, M., Murray, M. J., Bandi, V., Teres, D.  
2000; 26: S433-S442
- **Reversal agents** *Complications in Anesthesia*  
Barr, J.  
WB Saunders.1999; 1st: 114–116
- **Population pharmacokinetics of midazolam administered by target controlled infusion for sedation following coronary artery bypass grafting** *ANESTHESIOLOGY*  
Zomorodi, K., Donner, A., Somma, J., Barr, J., Sladen, R., Ramsay, J., Geller, E., Shafer, S. L.  
1998; 89 (6): 1418-1429
- **ICU sedation: A review of its pharmacology and assessment** *JOURNAL OF INTENSIVE CARE MEDICINE*  
Hill, L., Bertaccini, E., Barr, J., Geller, E.  
1998; 13 (4): 174-183
- **Remifentanyl vs alfentanil: Comparative pharmacokinetics and pharmacodynamics in healthy adult male volunteers** *ANESTHESIOLOGY*  
Egan, T., Minto, C., Hermann, D., Barr, J., Muir, K., Shafer, S.  
1996; 84 (4): 821-833
- **PROPOFOL - A NEW DRUG FOR SEDATION IN THE INTENSIVE-CARE UNIT** *INTERNATIONAL ANESTHESIOLOGY CLINICS*  
Barr, J.  
1995; 33 (1): 131-154
- **The pharmacokinetics of 8-methoxypsoralen following i.v. administration in humans** *British Journal of Clinical Pharmacology*  
Billiard, V., Gambus, P., Barr, J., Minto, C., Corash, L., Tessman, J.  
1995; 40 (4): 347-360
- **Optimal intravenous dosing strategies for sedatives and analgesics in the ICU** *Critical Care Clinics*  
Barr, J., Donner, A.  
1995; 11 (4): 827-847
- **GUARDIAN - AN EXPERIMENTAL SYSTEM FOR INTELLIGENT ICU MONITORING** *18th Annual Symposium on Computer Applications in Medical Care - Transforming Information, Changing Health Care*  
HAYESROTH, B., Uckun, S., Larsson, J. E., DRAKOPOULOS, J., Gaba, D., Barr, J., Chien, J.  
BMJ PUBLISHING GROUP.1994: 1004–1004
- **BIGUANIDE-ASSOCIATED LACTIC-ACIDOSIS - CASE-REPORT AND REVIEW OF THE LITERATURE** *ARCHIVES OF INTERNAL MEDICINE*  
Gan, S. C., Barr, J., Arieff, A. I., Pearl, R. G.  
1992; 152 (11): 2333-2336
- **PULMONARY-ARTERY CATHETERIZATION - THE RIGHT HEART SHOULD NOT BE LEFT OUT - A CASE-REPORT** *ANGIOLOGY*  
Cook, D. J., Davis, S. F., Barr, J. A., Pearl, R. G.  
1992; 43 (11): 952-956