Curriculum Vitae

Name: Christopher G. Hughes

Office Phone: 615-936-2454

Work Email: christopher.hughes@vanderbilt.edu

Training

08/1997 - 05/2001	B.S. in Biochemistry from Indiana University, IN United States
08/1997 - 05/2001	Certificate in Cultures and Science of Medicine from Indiana University, IN United States
08/2001 - 05/2005	M.D. in Medicine from Indiana University School of Medicine, IN United States
07/2005 - 06/2009	Residency in Anesthesiology from Vanderbilt University Medical Center, TN United States
07/2008 - 06/2009	Chief Resident in Anesthesiology from Vanderbilt University Medical Center, TN United States
08/2009 - 07/2010	Fellowship in Critical Care Medicine from Vanderbilt University Medical Center, TN United States

Licensure and Certification

11/2005 - Present	Fundamental Critical Care Support Course United States
05/2007 - Present	State of Tennessee, Medical License of Tennessee United States
07/2010 - Present	Advanced Trauma Life Support United States
10/2010 - 12/2020	The American Board of Anesthesiology, Critical Care Medicine United States
10/2010 - 12/2020	The American Board of Anesthesiology, Anesthesiology United States
06/2013 - 06/2015	Advanced Cardiovascular Life Support United States
06/2013 - 06/2015	Basic Life Support United States
08/2013 - Present	Institute for Medical Simulation United States
12/2013 - 12/2023	United Council for Neurologic Subspecialties, Neurocritical Care United States

Academic Appointments

08/1999 - 05/2001	Assistant Instructor of Organic Chemistry Lab, Chemistry, Indiana University (Bloomington, Indiana)
06/2000 - 08/2000	Assistant Instructor of Biological Chemistry, Chemistry, Indiana University (Bloomington, Indiana)
07/2009 - 06/2010	Fellow in Critical Care Anesthesiology, Vanderbilt University (Nashville, Tennessee)
08/2010 - Present	Assistant Professor of Anesthesiology, Vanderbilt University (Nashville, Tennessee)
09/2010 - Present	Assistant Professor of Anesthesiology, Anesthesiology, Tennessee Valley Healthcare System VA Medical Center (Nashville, Tennessee)

Other Work Experience

05/2001 - 08/2001 Chemistry Laboratory Researcher, Chemistry, Indiana University (Bloomington, Indiana)

Professional Organizations

2004	Alpha Omega Alpha Honor Medical Society, Member
2006	American Society of Anesthesiologists, Member
2006	Tennessee Society of Anesthesiologists, Member

2008	Health Volunteers Overseas, Member
2009	Society of Critical Care Medicine, Member
2010	International Anesthesia Research Society, Member
2012	Society for the Advancement of Geriatric Anesthesia
2013	Scholar, Vanderbilt Center for Health Services Research

Professional Activities

Intram	ural

2008 - Present	ICU Cognitive Impairment Study Group
2008 - 2010	Graduate Medical Education House Staff Alliance
2009 - 2009	Neurointensive Care Unit Improvement Committee
2009 - 2010	Vanderbilt Institutional Critical Care Committee
2010 - Present	Anesthesiology Supplies and Equipment Committee
2010 - Present	Multidisciplinary Surgical Critical Care Committee
2010 - 2011	Surgical ICU Hypothermia Committee
2011 - Present	Anesthesiology Admissions Committee, Interviewer
2011 - Present	Critical Care Anesthesiology Fellowship Interviews
2011 - Present	Vanderbilt Anesthesiology Clinical Research Advisory Committee
2011 - 2011	Pulmonary Artery Catheterization in Liver Transplantation Review Committee
2011 - 2011	MSTP Career Development Workshop, Anesthesiology Representative
2012 - Present	Blood Utilization in Liver Transplantation Committee
2012 - Present	SICU Blood Transfusion Task Force
2012 - Present	Anesthesiology Resident Education Committee
2012 - Present	Anesthesia Critical Care Resident Rotation Director, Director
2012 - Present	VA Surgical ICU Resident Rotation Director, Director
2012 - Present	Vanderbilt Surgical ICU Resident Rotation Director, Director
2013 - Present	VUMC Sedation Committee, Chair
2013 - Present	Anesthesiology Resident Clinical Competence Committee
2013 - Present	Vanderbilt Institutional Critical Care Committee
2013 - Present	Neurointensive Care Unit Associate Medical Director, Associate Medical Director

Extramural

2010 - 2013	VA Surgical ICU Morbidity and Mortality, Director
2010 - Present	Reviewer for Minerva Anestesiologica
2010 - Present	Reviewer for Anesthesiology
2011 - Present	Reviewer for Critical Care Medicine
2012 - 2013	VA Surgical ICU Medical Director, Medical Director
2012 - Present	Reviewer for Expert Reviews
2013 - Present	VA Surgical ICU Associate Medical Director, Associate Medical Director

Teaching Activities

2008 - 2008	Surgical and Anesthesia Intern Orientation: Basic Airway Management I, Lecturer, Vanderbilt University School of Medicine
2008 - 2008	Surgical and Anesthesia Intern Orientation: Basic Airway Management II, Lecturer, Vanderbilt University School of Medicine
2008 - 2008	Critical Care Skills Week: Anesthetic Monitoring, Lecturer, Vanderbilt University School of Medicine
2009 - 2009	Critical Care Skills Week: Trauma and Burn Management, Lecturer, Vanderbilt University School of Medicine
2009 - 2009	Critical Care Skills Week: Anesthetic Monitoring, Lecturer, Vanderbilt University School of Medicine

2009 - 2009	Anesthesia Resident Education Conference: Airway Workshop, Lecturer, Vanderbilt University School of Medicine
2009 - 2009	Medical, Surgical, and Anesthesia Intern Orientation: Cardiopulmonary Resuscitation, Lecturer, Vanderbilt University School of Medicine
2009 - 2009	Medical, Surgical, and Anesthesia Intern Orientation: Vascular Access, Lecturer, Vanderbilt University School of Medicine
2010 - 2010	Critical Care Skills Week: Neurosupport, Lecturer, Vanderbilt University School of Medicine
2010 - 2010	Neurointensive Care Unit Lecture Series: Seizures, Lecturer, Vanderbilt University School of Medicine
2010 - 2010	Neurointensive Care Unit Lecture Series: Infections in the Neurointensive Care Unit, Lecturer, Vanderbilt University School of Medicine
2010 - 2010	Neurointensive Care Unit Lecture Series: Closed Head Injuries, Lecturer, Vanderbilt University School of Medicine
2010 - 2010	Neurointensive Care Unit Lecture Series: Spinal Cord Injuries, Lecturer, Vanderbilt University School of Medicine
2010 - 2010	Surgical and Anesthesia Intern Orientation: Fluid Resuscitation and Vasopressors, Lecturer, Vanderbilt University School of Medicine
2010 - 2010	Fundamentals of Critical Care Support: Special Considerations in FCCS, Lecturer, Vanderbilt University School of Medicine
2010 - 2010	Critical Care Fellow Lecture Series: Traumatic Brain Injury, Lecturer, Vanderbilt University School of Medicine
2010 - 2010	Critical Care Fellow Lecture Series: Spinal Cord Injury, Lecturer, Vanderbilt University School of Medicine
2010 - 2010	Resident Simulation Training: CA-1 Resident Simulation, Lecturer, Vanderbilt University School of Medicine
2010 - 2010	Surgical Intensive Care Unit Fellow and Resident Lecture: Mechanical Ventilation, Lecturer, Vanderbilt University School of Medicine
2010 - 2010	Critical Care Skills Week: Electrolyte Emergencies, Lecturer, Vanderbilt University School of Medicine
2010 - 2010	Surgical Intensive Care Unit Fellow and Resident Lecture: Mechanical Ventilation, Lecturer, Vanderbilt University School of Medicine
2010 - 2010	Resident Simulation Training: CA-3 Resident Simulation, Lecturer, Vanderbilt University School of Medicine
2010 - 2010	Critical Care Skills Week: Trauma and Burn Management, Lecturer, Vanderbilt University School of Medicine
2010 - 2010	Critical Care Skills Week: Anesthetic Monitoring, Lecturer, Vanderbilt University School of Medicine
2011 - 2011	Resident Simulation Training: Crisis Management, Lecturer, Vanderbilt University School of Medicine
2011 - 2011	Surgical Intensive Care Unit Fellow and Resident Lecture: Arterial Blood Gas Interpretation, Lecturer, Vanderbilt University School of Medicine
2011 - 2011	Surgical Intensive Care Unit Fellow and Resident Lecture: Mechanical Ventilation, Lecturer, Vanderbilt University School of Medicine
2011 - 2011	Anesthesiology Intern Lecture: Autonomics and Anesthesiology, Lecturer, Vanderbilt University School of Medicine
2011 - 2011	Neurosciences Lecture Series: Seizures and Sedative Pharmacology, Lecturer, Crisis Management Intern Resident Simulation
2011 - 2011	Medicine and Emergency Medicine Intern Orientation: Airway Management, Lecturer, Vanderbilt University School of Medicine
2011 - 2011	Surgery and Anesthesiology Intern Orientation: Vascular Ultrasound, Lecturer, Vanderbilt University School of Medicine
2011 - 2011	Surgery and Anesthesiology Intern Orientation: Teamwork, Lecturer, Vanderbilt University School of Medicine
2011 - 2011	Critical Care Skills Week: Advanced Hemodynamic Monitoring, Lecturer, Vanderbilt University School of Medicine
2011 - 2011	Resident Simulation Training: CA-1 Resident Simulation, Lecturer, Vanderbilt University School of Medicine
2011 - 2011	Surgical Intensive Care Unit Fellow and Resident Lecture: Endocrine Issues in the ICU, Lecturer, Vanderbilt University School of Medicine
2011 - 2011	Surgical Intensive Care Unit Fellow and Resident Lecture: Arterial Blood Gas Interpretation,

2011 2011	Lecturer, Vanderbilt University School of Medicine Surgical Intensive Care Unit Fellow and Resident Lecture: Shock Diagnosis and Management,
2011 - 2011	Lecturer, Vanderbilt University School of Medicine
2011 - 2011	Critical Care Skills Week: Diagnosis and Management of Critically III Patients, Lecturer, Vanderbilt University School of Medicine
2011 - 2011	Surgical Intensive Care Unit Fellow and Resident Lecture: Mechanical Ventilation, Lecturer, Vanderbilt University School of Medicine
2011 - 2011	Resident Simulation Training: CA-3 Resident Simulation, Lecturer, Vanderbilt University School of Medicine
2011 - 2011	Resident Simulation Training: CA-3 Resident Simulation, Lecturer, Vanderbilt University School of Medicine
2011 - 2011	Anesthesiology Intern Perioperative Skills Course: Metabolic and Electrolyte Emergencies, Lecturer, Vanderbilt University School of Medicine
2011 - 2011	Anesthesiology Intern Perioperative Skills Course: Metabolic and Electrolyte Emergencies, Lecturer, Vanderbilt University School of Medicine
2011 - 2011	Medical Student Critical Care Skills Week: Trauma and Burn Fluid Management, Lecturer, Vanderbilt University School of Medicine
2011 - 2011	Medical Student Critical Care Skills Week: Anesthetic Monitoring, Lecturer, Vanderbilt University School of Medicine
2011 - 2011	Resident SImulation Training: CA-3 Resident Simulation, Lecturer, Vanderbilt University School of Medicine
2011 - 2011	Fundamentals of Critical Care Support: Airway Management, Lecturer, Vanderbilt University School of Medicine
2011 - 2011	Critical Care Skills Week: Anesthetic Monitoring, Lecturer, Vanderbilt University School of Medicine
2011 - 2011	Critical Care Skills Week: Trauma and Burn Fluid Management, Lecturer, Vanderbilt University School of Medicine
2011 - 2011	Anesthesiology Intern Perioperative Skills Course: Metabolic and Electrolyte Emergencies, Lecturer, Vanderbilt University School of Medicine
2012 - 2012	Medical Student Critical Care Skills Week: Trauma and Burn Fluid Management, Lecturer, Vanderbilt University School of Medicine
2012 - 2012	Advanced Perioperative Medicine: Sedation and Delirium, Lecturer, Vanderbilt University School of Medicine
2012 - 2012	Surgical Intensive Care Unit Fellow and Resident Lecture: ARDS/ALI, Lecturer, Vanderbilt University School of Medicine
2012 - 2012	Surgical Intensive Care Unit Fellow and Resident Lecture: Sedation/Delirium, Lecturer, Vanderbilt University School of Medicine
2012 - 2012	Surgical Intensive Care Unit Fellow and Resident Lecture: Arrhythmias, Lecturer, Vanderbilt University School of Medicine
2012 - 2012	Anesthesiology Intern Lecture: Autonomic Nervous System Physiology and Pharmacology, Lecturer, Vanderbilt University School of Medicine
2012 - 2012	Critical Care Fellow Simulation Training: Critical Care Fellow Simulation, Lecturer, Vanderbilt University School of Medicine
2012 - 2012	Surgical Intensive Care Unit Fellow and Resident Lecture: DVT/PE, Lecturer, Vanderbilt University School of Medicine
2012 - 2012	Medical Student Critical Care Skills Week: Preoperative Anesthetic Evaluation, Lecturer, Vanderbilt University School of Medicine
2012 - 2012	Anesthesiology Intern Simulation: Introduction to Anesthesiology, Lecturer, Vanderbilt University School of Medicine
2012 - 2012	Anesthesiology Intern Simulation: Crisis Management, Lecturer, Vanderbilt University School of Medicine
2012 - 2012	Surgical and Anesthesia Intern Orientation: Vascular Checklist, Lecturer, Vanderbilt University School of Medicine
2012 - 2012	Surgical Intensive Care Unit Fellow and Resident Lecture: Renal Failure, Lecturer, Vanderbilt University School of Medicine
2012 - 2012	Anesthesiology Intern Perioperative Skills Course: Metabolic and Electrolyte Emergencies, Lecturer, Vanderbilt University School of Medicine
2012 - 2012	Anesthesiology Intern Perioperative Skills Course: Metabolic and Electrolyte Emergencies, Lecturer, Vanderbilt University School of Medicine
2012 - 2012	Medical Student Immersion Course: Oliguria in the ICU, Lecturer, Vanderbilt University School

of Medicine Medical Student Critical Care Skills Week: Diagnosis of Shock, Lecturer, Vanderbilt University 2012 - 2012 School of Medicine Medical Student Immersion Course: Hemodynamic Monitoring, Lecturer, Vanderbilt University 2012 - 2012 School of Medicine Surgical Intensive Care Unit Fellow and Resident Lecture: Nutrition, Lecturer, Vanderbilt 2012 - 2012 University School of Medicine Surgical Intensive Care Unit Fellow and Resident Lecture: Sedation/Delirium, Lecturer, 2012 - 2012 Vandebilt University School of Medicine Anesthesiology Intern Perioperative Skills Course: Metabolic and Electrolyte Emergencies, 2012 - 2012 Lecturer, Vanderbilt University School of Medicine Surgical Intensive Care Unit Fellow and Resident Lecture: Nutrition, Lecturer, Vanderbilt 2012 - 2012 University School of Medicine Fundamentals of Critical Care Support: Mechanical Ventilation II, Lecturer, Vanderbilt 2012 - 2012 University School of Medicine Anesthesia Critical Care Fellow Conference: Oliguria in the ICU, Lecturer, Vanderbilt University 2012 - 2012 School of Medicine Surgical Intensive Care Unit Fellow and Resident Lecture: Arrhythmias, Lecturer, Vanderbilt 2013 - 2013 University School of Medicine Surgical Intensive Care Unit Fellow and Resident Lecture: Sedation/Delirium, Lecturer, 2013 - 2013 Vanderbilt University School of Medicine Resident Simulation Training: CA-3 Resident Simulation, Lecturer, Vanderbilt University School 2013 - 2013 of Medicine Anesthesiology Resident Lecture: Fluid Management and Blood Component Therapy, Lecturer, 2013 - 2013 Vanderbilt University Medical Center Surgical Intensive Care Unit Fellow and Resident Lecture: ICU Sedation, Lecturer, Vanderbilt 2013 - 2013 University School of Medcine Surgical Intensive Care Unit Fellow and Resident Lecture: Acute Kidney Injury, Lecturer, 2013 - 2013 Vanderbilt University School of Medicine ACNP Student Conference: Best Sedation and Delirium Practices in the ICU, Lecturer, 2013 - 2013 Vanderbilt University School of Nursing Anesthesiology Intern Lecture: Autonomic Nervous System Physiology and Pharmacology, 2013 - 2013 Lecturer, Vanderbilt University School of Medicine Anesthesiology Intern Simulation: Crisis Management, Lecturer, Vanderbilt University School of 2013 - 2013 Medicine Medical Student Critical Care Skills Week: Neurosupport, Lecturer, Vanderbilt University School 2013 - 2013 of Medicine OMFS Department Conference: Adrenal Pathophysiology, Lecturer, Vanderbilt University School 2013 - 2013 of Medicine Medical Student Critical Care Skills Week: Electrolyte and Metabolic Emergencies, Lecturer, 2013 - 2013 Vanderbilt University School of Medicine Medical Student Immersion Course: Hemodynamic Monitoring, Lecturer, Vanderbilt University 2013 - 2013 School of Medicine Medical Student Critical Care Skills Week: Trauma and Burn Fluid Management, Lecturer, 2013 - 2013 Vanderbilt University School of Medicine Multidisciplinary Surgical Critical Care Conference: Sedation in the ICU, Lecturer, Vanderbilt 2013 - 2013 University School of Medicine Medical Student Critical Care Skills Week: Critical Care in Pregnancy, Lecturer, Vanderbilt 2013 - 2013 University School of Medicine Anesthesiology Intern Simulation: Introduction to Anesthesiology, Lecturer, Vanderbilt 2013 - 2013 University School of Medicine Anesthesiology Resident Lecture: Anesthesia for Patients with Respiratory Disease, Lecturer, 2013 - 2013 Vanderbilt University School of Medicine Anesthesiology Critical Care Fellow Conference: Congestive Heart Failure Management in the 2013 - 2013 ICU, Lecturer, Vanderbilt University School of Medicine Fundamentals of Critical Care Support: Recognition and Assessment of the Seriously III Patient, 2013 - 2013 Lecturer, Vanderbilt University School of Medicine Anesthesiology Intern Perioperative Skills Course: Metabolic and Electrolyte Emergencies, 2013 - 2013 Lecturer, Vanderbilt University School of Medicine 2013 - 2013

Resident Simulation Training: CA-1 Resident Simulation, Lecturer, Vanderbilt University School

	of Medicine
2013 - 2013	Medical Student Immersion Course: Surviving Sepsis, Lecturer, Vanderbilt University School of Medicine
2014 - 2014	Surgical Intensive Care Unit Fellow and Resident Lecture: Mechanical Ventilation, Lecturer, Vanderbilt University School of Medicine
2014 - 2014	Medical Student Critical Care Skills Week: Mechanical Ventilation, Lecturer, Vanderbilt University School of Medicine
2014 - 2014	Medical Student Immersion Course: ABG Analysis, Lecturer, Vanderbilt University School of Medicine
2014 - 2014	Surgical Intensive Care Unit Fellow and Resident Lecture: Acute Lung Injury, Lecturer, Vanderbilt Univeristy School of Medicine
2014 - 2014	Medical Student Critical Care Skills Week: Mechanical Ventilation Workshop, Lecturer, Vanderbilt University School of Medicine
2014 - 2014	ACNP Student Conference: Best Sedation Practices in the ICU, Lecturer, Vanderbilt University School of Medicine
2014 - 2014	Medical Student Critical Care Skills Week: Central Line Placement, Lecturer, Vanderbilt University School of Medicine
2014 - 2014	Anesthesiology Resident Lecture: Pharmacological Principles, Lecturer, Vanderbilt University School of Medicine
2014 - 2014	Anesthesiology Resident Lecture: Adrenergic Agonists and Antagonists, Lecturer, Vanderbilt University School of Medicine
2014 - 2014	Medical Student Immersion Course: Valve Pathology and Management, Lecturer, Vanderbilt University School of Medicine
2014 - 2014	Surgical Intensive Care Unit Fellow and Resident Lecture: Sepsis and Shock, Lecturer, Vanderbilt University School of Medicine
2014 - 2014	Surgical Intensive Care Unit Fellow and Resident Lecture: Acute Kidney Injury, Lecturer, Vanderbilt University School of Medicine
2014 - 2014	Medical Student Critical Care Skills Week: Electrolyte and Metabolic Emergencies, Lecturer, Vanderbilt University School of Medicine

Research Supervision / Mentorship

2010 - Present Patrick Henson, D.O. Vanderbilt University School of Medicine, Current Position: Clinical Instructor, Department of Anesthesiology. (Faculty, General Mentorship)

Grants and Funding

Grant number unavailable

10/2007 - 10/2010

Vanderbilt Department of Anesthesiology

Intraoperative Anesthetic Characteristics and the Development of Acute Respiratory Distress Syndrome

This prospective cohort study analyzed the effect of intraoperative tidal volumes, fluid resuscitation, and blood product administration on the development of ARDS in postoperative critically ill patients.

Role: Principal Investigator Total Cost: \$2,500.00

PF333 02/2009 - 02/2012

Vanderbilt Institute for Clinical and Translational Research

Endothelial Dysfunction as a Predictor of Intensive Care Unit Delirium and Long-term Cognitive Impairment

The objectives of this research project focus on elucidating the role of endothelial dysfunction, as measured by periphera artery tonometry and endothelial progenitor cell enumeration, in delirium and long-term cognitive impairment (LTCI) in critically ill patients. Endothelial dysfunction may be a final common pathway for various organ dysfunctions, including delirium and LTCI, and we are utilizing validated state-of-the-art techniques to study endothelial function, delirium, cognitive impairment, and their interrelationships in critically ill patients. This CTSA Grant supports part of clinical and laboratory supplies required for the study.

Role: Principal Investigator Total Cost: \$21,000.00 Grant number unavailable

03/2009 - 03/2012

Vanderbilt Department of Anesthesiology

Endothelial Dysfunction as a Predictor of Intensive Care Unit Delirium and Long-term Cognitive Impairment

The objectives of this research project focus on elucidating the role of endothelial dysfunction, as measured by periphera artery tonometry and endothelial progenitor cell enumeration, in delirium and long-term cognitive impairment (LTCI) in critically ill patients. Endothelial dysfunction may be a final common pathway for various organ dysfunctions, including delirium and LTCI, and we are utilizing validated state-of-the-art techniques to study endothelial function, delirium, cognitive impairment, and their interrelationships in critically ill patients. This Innovation Grant supports the remainder c clinical and laboratory supplies required for the study.

Role: Principal Investigator Total Cost: \$21,000.00

MRTG-CT-02/15/2010-Hughes

07/2010 - 06/2012

(Christopher)

Foundation for Anesthesia Education and Research

Endothelial Dysfunction as a Predictor of Intensive Care Unit Delirium and Long-Term Cognitive Impairment

The objectives of this research project focus on elucidating the role of endothelial dysfunction, as measured by periphera artery tonometry and endothelial progenitor cell enumeration, in delirium and long-term cognitive impairment (LTCI) in critically ill patients. Endothelial dysfunction may be a final common pathway for various organ dysfunctions, including delirium and LTCI, and we are utilizing validated state-of-the-art techniques to study endothelial function, delirium, cognitive impairment, and their interrelationships in critically ill patients. This FAER Mentored Research Training Grant provides salary support for protected research time to complete this study.

Role: Principal Investigator Total Cost: \$175,000.00

VR1504 04/2011 - 04/2013

Vanderbilt Institute for Clinical and Translational Research

Effects of Early Rehabilitation on Endothelial Function and Delirium in the ICU

The objective of this research project is to elucidate the effects of early physical rehabilitation on endothelial function, as measured by peripheral artery tonometry and endothelial progenitor cell enumeration, in a randomized controlled study critically ill patients. We will also examine the correlation between change in endothelial function and the duration of ICU brain organ dysfunction. This CTSA Grant supports the clinical and laboratory supplies required for the study.

Role: Principal Investigator Total Cost: \$31,180.00

1R01HL11111-01A1 Pandharipande, P (PI) 08/2012 - 08/2017

National Heart, Lung, and Blood Institute

Altering Sedation Paradigms to Improve Brain Injury and Survival in Severe Sepsis

Role: Co-Investigator Total Cost: \$4,000,000.00

VR6589 Hughes, C (PI) 04/2013 - 04/2014

Vanderbilt Institute for Clinical and Translational Research Endothelial Disease and Cognitive Outcomes in Critical Illness

Role: Principal Investigator Total Cost: \$24,189.00

Honors / Awards

2001	Class of 1968 - Marvin A. Evans & Larry G. Hitchcock Scholarship, Indiana University School of Medicine
2002	John D. Van Nuys, M.D. Scholarship, Indiana University School of Medicine
2002	Slemenda Scholar, Indiana University School of Medicine's Kenya Program, Indiana University School of Medicine
2003	Peter V. Westhaysen Medical Education Trust Scholarship, Indiana University School of Medicine
2003	Dr. Eugene Hendershot Medical Scholarship, Indiana University School of Medicine

Benjamin Howard Robbins Scholars Program, Vanderbilt University Department of Anesthesiology SEA - HVO Traveling Fellowship to Bugando Medical Centre, Tanzania, Society for Education in Anesthesia Vice-Chair's Award for Outstanding Scholarship, Vanderbilt University Department of Anesthesiology PAER Mentored Research Training Grant, Foundation for Anesthesia Education and Research Charles Bernard Pittinger, M.D. Prize for Excellence in Clinical/Translational Research, Vanderbilt University Department of Anesthesiology, 7th Annual Anesthesiology Research Symposium Chair s Award for Academic Achievement, Vanderbilt University Department of Anesthesiology Best Poster Presentation, Annual Anesthesiology Research Symposium, Vanderbilt University Department of Anesthesiology Chair s Award for Academic Achievement, Vanderbilt University Department of Anesthesiology Leading Physicians of the World, International Association of Anesthesiologist Chair s Award for Academic Achievement, Vanderbilt University Department of Anesthesiology Research Citation Finalist, Society of Critical Care Medicine	2007	FAER/Abbott - Volwiler & Tabern Resident Scholar Program, Foundation for Anesthesia Education and Research/Abbott Laboratories
Anesthesia Vice-Chair's Award for Outstanding Scholarship, Vanderbilt University Department of Anesthesiology FAER Mentored Research Training Grant, Foundation for Anesthesia Education and Research Charles Bernard Pittinger, M.D. Prize for Excellence in Clinical/Translational Research, Vanderbilt University Department of Anesthesiology, 7th Annual Anesthesiology Research Symposium Chair s Award for Academic Achievement, Vanderbilt University Department of Anesthesiology Best Poster Presentation, Annual Anesthesiology Research Symposium, Vanderbilt University Department of Anesthesiology Chair s Award for Academic Achievement, Vanderbilt University Department of Anesthesiology Leading Physicians of the World, International Association of Anesthesiologist Chair s Award for Academic Achievement, Vanderbilt University Department of Anesthesiology	2007	3 , , , , ,
Anesthesiology PAER Mentored Research Training Grant, Foundation for Anesthesia Education and Research Charles Bernard Pittinger, M.D. Prize for Excellence in Clinical/Translational Research, Vanderbilt University Department of Anesthesiology, 7th Annual Anesthesiology Research Symposium Chair s Award for Academic Achievement, Vanderbilt University Department of Anesthesiology Best Poster Presentation, Annual Anesthesiology Research Symposium, Vanderbilt University Department of Anesthesiology Chair s Award for Academic Achievement, Vanderbilt University Department of Anesthesiology Leading Physicians of the World, International Association of Anesthesiologist Chair s Award for Academic Achievement, Vanderbilt University Department of Anesthesiology	2008	
Charles Bernard Pittinger, M.D. Prize for Excellence in Clinical/Translational Research, Vanderbilt University Department of Anesthesiology, 7th Annual Anesthesiology Research Symposium Chair s Award for Academic Achievement, Vanderbilt University Department of Anesthesiology Best Poster Presentation, Annual Anesthesiology Research Symposium, Vanderbilt University Department of Anesthesiology Chair s Award for Academic Achievement, Vanderbilt University Department of Anesthesiology Leading Physicians of the World, International Association of Anesthesiologist Chair s Award for Academic Achievement, Vanderbilt University Department of Anesthesiology Chair s Award for Academic Achievement, Vanderbilt University Department of Anesthesiology	2009	, , ,
Vanderbilt University Department of Anesthesiology, 7th Annual Anesthesiology Research Symposium Chair□ s Award for Academic Achievement, Vanderbilt University Department of Anesthesiology Best Poster Presentation, Annual Anesthesiology Research Symposium, Vanderbilt University Department of Anesthesiology Chair□ s Award for Academic Achievement, Vanderbilt University Department of Anesthesiology Leading Physicians of the World, International Association of Anesthesiologist Chair□ s Award for Academic Achievement, Vanderbilt University Department of Anesthesiology Chair□ s Award for Academic Achievement, Vanderbilt University Department of Anesthesiology	2010	FAER Mentored Research Training Grant, Foundation for Anesthesia Education and Research
Best Poster Presentation, Annual Anesthesiology Research Symposium, Vanderbilt University Department of Anesthesiology Chair s Award for Academic Achievement, Vanderbilt University Department of Anesthesiology Leading Physicians of the World, International Association of Anesthesiologist Chair s Award for Academic Achievement, Vanderbilt University Department of Anesthesiology	2011	Vanderbilt University Department of Anesthesiology, 7th Annual Anesthesiology Research
Department of Anesthesiology Chair□ s Award for Academic Achievement, Vanderbilt University Department of Anesthesiology Leading Physicians of the World, International Association of Anesthesiologist Chair□ s Award for Academic Achievement, Vanderbilt University Department of Anesthesiology	2011	Chair□ s Award for Academic Achievement, Vanderbilt University Department of Anesthesiology
2013 Leading Physicians of the World, International Association of Anesthesiologist 2013 Chair s Award for Academic Achievement, Vanderbilt University Department of Anesthesiology	2012	, , , , , , , , , , , , , , , , , , , ,
2013 Chair s Award for Academic Achievement, Vanderbilt University Department of Anesthesiology	2012	Chair□ s Award for Academic Achievement, Vanderbilt University Department of Anesthesiology
3,	2013	Leading Physicians of the World, International Association of Anesthesiologist
2014 Research Citation Finalist, Society of Critical Care Medicine	2013	Chair□ s Award for Academic Achievement, Vanderbilt University Department of Anesthesiology
	2014	Research Citation Finalist, Society of Critical Care Medicine

Publications

Peer Reviewed Publications

Research Articles

- 1. Coalter N, Concolino T, Streib W, **Hughes CG**, Rheingold A, Zaleski J. Structure and thermal reactivity of a novel Pd(0) metallonenediyne. <u>Journal of the American Chemical Society</u> 2000; 112:3112-3117.
- Hughes CG, Waldman JM, Barrios J, Robertson A. Postshunt hemochromatosis leading to cardiogenic shock in a
 patient presenting for orthotopic liver transplant: a case report. <u>Transplantation proceedings</u> 2009 Jun;41
 (5):2000-2. PMID: 19545779.
- Hughes CG, Weavind L, Banerjee A, Mercaldo ND, Schildcrout JS, Pandharipande PP. Intraoperative risk factors for acute respiratory distress syndrome in critically ill patients. <u>Anesthesia and analgesia</u> 2010 Aug;111(2):464-7. PMID: 20418537.
- 4. **Hughes CG**, Mathews L, Easdown J, Pandharipande PP. The McGrath video laryngoscope in unstable cervical spine surgery: a case series. <u>Journal of clinical anesthesia</u> 2010 Nov;22(7):575-6. PMID: 21056821.
- 5. **Hughes CG**, Pandharipande PP. The effects of perioperative and intensive care unit sedation on brain organ dysfunction. <u>Anesthesia and analgesia</u> 2011 May;112(5):1212-7. PMID: 21474659.
- 6. Morandi A, **Hughes CG**, Girard TD, McAuley DF, Ely EW, Pandharipande PP. Statins and brain dysfunction: a hypothesis to reduce the burden of cognitive impairment in patients who are critically ill. <u>Chest</u> 2011 Sep;140 (3):580-5. PMID: 21896517.
- 7. **Hughes CG**, McGrane S, Pandharipande PP. Sedation in the intensive care setting. <u>Clinical pharmacology: advances and applications</u> 2012; 4:53-63. PMID: 23204873 PMCID: PMC3508653.
- 8. Vasilevskis EE, Han JH, **Hughes CG**, Ely EW. Epidemiology and risk factors for delirium across hospital settings. Best practice & research. Clinical anaesthesiology 2012 Sep;26(3):277-287. PMID: 23040281.
- 9. **Hughes CG**, Brummel NE, Vasilevskis EE, Girard TD, Pandharipande PP. Future directions of delirium research and management. Best practice & research. Clinical anaesthesiology 2012 Sep;26(3):395-405. PMID: 23040289.
- 10. **Hughes CG**, Patel MB, Pandharipande PP. Pathophysiology of acute brain dysfunction: what's the cause of all this confusion?. <u>Current opinion in critical care</u> 2012 Oct;18(5):518-26. PMID: 22941208.
- 11. **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. <u>Anesthesiology</u> 2013 Mar;118(3):631-9. PMID: 23263016.
- 12. **Hughes CG**, Girard TD, Pandharipande PP. Daily sedation interruption versus targeted light sedation strategies in ICU patients. Critical care medicine 2013 Sep;41(9 Suppl 1):S39-45. PMID: 23989094.
- 13. 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, the BRAIN-ICU Study Investigators. Long-Term Cognitive Impairment after Critical Illness. The New England journal of medicine 2013 Oct;369(14):1306-1316. PMID: 24088092.
- 14. 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, for the Bringing to light the Risk Factors And Incidence of Neuropsychological dysfunction in ICU survivors (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; Epub.
- 15. Morandi M, **Hughes CG**, Thompson JT, Pandharipande PP, Shintani AK, Vasilevskis EE, Han JH, Jackson JC, Laskowitz D, Bernard GR, Ely EW, Girard TD. Statins and delirium during critical illness: a multicenter, prospective cohort study. <u>Critical Care Medicine</u> 2014; in press.

Letters

1. Pandharipande PP, **Hughes CG**, Girard TD. Only a small subset of sedation-related delirium is innocuous: we cannot let our guard down. American Journal of Respiratory and Critical Care Medicine 2014; in press.

Non-Peer Reviewed Publications

Research Articles

1. Brummel NE, Girard TD, Ely EW, Pandharipande PP, Morandi A, **Hughes CG**, Graves AJ, Shintani A, Murphy E, Work B, Pun BT, Boehm L, Gill TM, Dittus RS, Jackson JC. Feasibility and safety of early combined cognitive and physical therapy for critically ill medical and surgical patients: the Activity and Cognitive Therapy in ICU (ACT-ICU) trial. Intensive care medicine 2014 Mar;40(3):370-9. PMID: 24257969 PMCID: PMC3943568.

Book Chapters

- Hughes CG, Pandharipande PP. Management of sedation, analgesia, and delirium. Society of Critical Care Medicine's Multiprofessional Critical Care Refresher Course. United States: Society of Critical Care Medicine; 2009.
- 2. **Hughes CG**, Pandharipande PP. Management of sedation, analgesia, and delirium. Adult Multiprofessional Critical Care Review. Editors: R. United States: Society of Critical Care Medicine; 2009.
- 3. **Hughes CG**, Ely EW, Pandharipande PP. Management of pain, anxiety, and delirium. Textbook of Critical Care 6th Edition. Editors: F. United States: Elsevier Inc; 2011.
- 4. **Hughes CG**, McGrane S, Ely EW, Pandharipande PP. Management of sedation, analgesia, and delirium. Anesthetic Pharmacology 2nd Edition. Editors: E. United Kingdom: Cambridge University Press; 2011.
- Hughes CG, Weavind L, Pandharipande PP. Pain, sedation, and delirium management of critically ill obese patients. Critical Care Management of the Obese Patient. Editors: S. United States: John Wiley & Sons, Ltd; 2012.
- Hughes CG, Pandharipande PP. Altered mental status: delirium and coma. SCCM Adult Multiprofessional Self-Assessment Review Book on Neurologic Critical Care. Editors: S. United States: Society of Critical Care Medicine; 2012.
- 7. **Hughes CG**, Pandharipande PP. New paradigms in sedation of the critically ill patient. Brain Dysfunction in Critical Illness. Editors: S. United Kingdom: Cambridge University Press; 2013.
- 8. **Hughes CG**, McGrane S, Pandharipande PP. Altered mental status during critical illness: delirium and coma. Current Concepts in Adult Critical Care. Editors: B. United States: Society of Critical Care Medicine; 2014.

Monographs

1. **Hughes CG**, Pandharipande PP. Diagnosis and management of delirium in the postoperative cardiac patient. Postoperative Cardiac Care. A Society of Cardiovascular Anesthesiologists Monograph. Editors: S. United States: Lippincott Williams & Wilkins; 2011.

Presentations

Presentations at Scientific Meetings

- 1. Hughes C, Easdown J, Pandharipande P, Mathews L. American Society of Anesthesiologists Annual Meeting. American Society of Anesthesiologists; Orlando, Florida. 2008; Use of the McGrath video laryngoscope in unstable cervical spine surgery: a pilot investigation.
- 2. Hughes C, Weavind L, Banerjee A, Mercaldo N, Schildcrout J, Pandharipande P. American Society of Critical Care Anesthesiologists Annual Meeting. American Society of Critical Care Anesthesiologists; New Orleans, Louisiana. 2009; Intraoperative anesthetic characteristics and the development of ARDS: a pilot study.
- 3. Hughes C, Weavind L, Banerjee A, Mercaldo N, Schildcrout J, Pandharipande P. American Society of Anesthesiologists Annual Meeting. American Society of Anesthesiologists; New Orleans, Louisiana. 2009; Intraoperative anesthetic characteristics and the development of ARDS: a pilot study.
- 4. Hughes C, Baysinger C. Society for Obstetric Anesthesia and Perinatology Annual Meeting. Society for Obstetric

- Anesthesia and Perinatology; Washington, Dist. Of Col.. 2009; Labor anesthesia in a patient with severe chronic psoriasis, asthma, and morbid obesity.
- 5. Hughes C, Weavind L, Banerjee A, Mercaldo N, Schildcrout J, Pandharipande P. Association of University Anesthesiologists 57th Annual Meeting. Association of University Anesthesiologists; Denver, Colorado. 2010; Intraoperative fluid administration is a risk factor for development of acute respiratory distress syndrome in the ICU.
- 6. Hughes C, Weavind L, Banerjee A, Mercaldo N, Schildcrout J, Pandharipande P. Society of Critical Care Medicine's 39th Critical Care Congress. Society of Critical Care Medicine; Miami, Florida. 2010; Intraoperative fluid administration is a risk factor for development of acute respiratory distress syndrome in the ICU.
- 7. Hughes C, Thompson J, Morandi A, Girard T, Ely E, Pandharipande P. Association of University Anesthesiologists 58th Annual Meeting. Association of University Anesthesiologists; Philadelphia, Pennsylvania. 2011; The role of endothelial dysfunction in intensive care unit delirium.
- 8. Hughes C, Morandi A, Thompson J, Girard T, Ely E, Pandharipande P. Society of Critical Care Anesthesiologists Annual Meeting. Chicago, Illinois. 2011; The role of endothelial health in prevention of ICU brain dysfunction.
- 9. Hughes C, Morandi A, Thompson J, Girard T, Ely E, Pandharipande P. American Society of Anesthesiologists Annual Meeting. Chicago, Illinois. 2011; The role of endothelial health in prevention of ICU brain dysfunction.
- 10. Hughes C, Morandi A, Shintani A, Ely E, Pandharipande P, Girard T. Association of University Anesthesiologists 59th Annual Meeting. Association of University Anesthesiologists; Cleveland, Ohio. 2012; Statins and the daily risk of delirium in critically ill patients.
- 11. Card E, Hughes C, Graves A, Pandharipande P. Society of Critical Care Anesthesiologists Annual Meeting. Society of Critical Care Anesthesiologists; Washington, Dist. Of Col.. 2012; Incidence and risk factors for emergence and PACU delirium.
- 12. Hughes C, Morandi A, Thompson J, Girard T, Ely E, Pandharipande P. Society of Critical Care Medicine □ s 41st Critical Care Congress. Society of Critical Care Medicine; Houston, Texas. 2012; The role of endothelial health in prevention of ICU brain dysfunction.
- 13. Morandi A, Pandharipande P, Shintani A, Hughes C, Vasilevskis E, Thompson J, Han J, Jackson J, Bernard G, Laskowitz D, Ely E, Girard T. American Thoracic Society International Conference. San Francisco, California. 2012; Statin use and the daily risk of delirium in a prospective cohort of critically ill patients.
- 14. Azzazy N, Weavind L, Hughes C. 10th Annual AMA Research Symposium. American Medical Association; Honolulu, Hawaii. 2012; Nitroglycerin to improve microcirculatory blood flow and lactic acidosis in septic shock: a case report.
- 15. Card E, Hughes C, Tomes C, Lee C, Wood J, Nelson D, Allen L, Graves A, Shintani A, Pandharipande P. The Second American Delirium Society Conference. American Delirium Society; Indianapolis, Indiana. 2012; Incidence and risk factors for emergence and PACU delirium.
- 16. Card E, Hughes C, Tomes C, Lee C, Wood J, Nelson D, Allen L, Graves A, Shintani A, Pandharipande P. American Society of PeriAnesthesia Nurses 2013 National Conference. American Society of PeriAnesthesia Nurses; Chicago, Illinois. 2013; Incidence and risk factors for emergence and PACU delirium.
- 17. Card E, Hughes C, Tomes C, Lee C, Wood J, Nelson D, Allen L, Graves A, Shintani A, Pandharipande P. International Conference for Perianesthesia Nurses. Irish Anaesthetic & Recovery Nurses Association; Dublin, Ireland. 2013; Incidence and risk factors for emergence and PACU delirium.
- 18. Hughes C, Brummel N, Girard T, Graves A, Shintani A, Ely E, Pandharipande P. Society of Critical Care Medicine s 42nd Critical Care Congress. Society of Critical Care Medicine; San Juan, Puerto Rico. 2013; Improvement in endothelial function is associated with reduced brain dysfunction in critically ill patients.
- 19. Hughes C, Brummel N, Girard T, Graves A, Shintani A, Ely E, Pandharipande P. Association of University Anesthesiologists 60th Annual Meeting. Association of University Anesthesiologists; Miami, Florida. 2013; Improvement in endothelial function is associated with reduced brain dysfunction in critically ill patients.
- 20. Hughes C, Girard T, Thompson J, Shintani A, Jefferson A, Ely E, Pandharipande P. Society of Critical Care Medicine s 43rd Critical Care Congress. Society of Critical Care Medicine; San Francisco, California. 2014; Role of markers of endothelial dysfunction and blood brain barrier injury in acute brain dysfunction.
- 21. 2. Hughes C, Girard T, Thompson J, Shintani A, Jefferson A, Ely E, Pandharipande P. American Delirium Society Annual Meeting. American Delirium Society; Baltimore, Maryland. 2014; Role of markers of endothelial dysfunction and blood brain barrier injury in acute brain dysfunction.
- 22. King A, Alvis B, Hester D, Hughes C, Higgins M. International Anesthesia Research Society Annual Meeting. International Anesthesia Research Society; Montreal, Canada. 2014; Randomized controlled trial of the rigid and flexing laryngoscope versus the fiberoptic bronchoscope for difficult airway management.
- 23. 1. Brummel N, Pandharipande P, Girard T, Jackson J, Thompson J, Chandrasekhar R, Hughes C, Ely E. Translational Science 2014. ssociation for Clinical and Translational Science and American Federation for Medical Research; Washington, Dist. Of Col.. 2014; Duration of subsyndromal delirium, institutionalization, mortality and cognitive impairment following critical illness.
- 24. 1. Brummel N, Pandharipande P, Girard T, Jackson J, Thompson J, Chandrasekhar R, Hughes C, Ely E. American Delirium Society Annual Meeting. American Delirium Society; Baltimore, Maryland. 2014; Duration of subsyndromal delirium, institutionalization, mortality and cognitive impairment following critical illness.
- 25. 3. Brummel N, Pandharipande P, Girard T, Jackson J, Thompson J, Chandrasekhar R, Hughes C, Ely E.

- American Geriatrics Society Annual Meeting. American Geriatrics Society; Orlando, Florida. 2014; Duration of subsyndromal delirium, institutionalization, mortality and cognitive impairment following critical illness.
- 26. 2. Brummel N, Pandharipande P, Girard T, Jackson J, Thompson J, Chandrasekhar R, Hughes C, Ely E. American Thoracic Society International Conference. American Thoracic Society; San Diego, California. 2014; Duration of subsyndromal delirium, institutionalization, mortality and cognitive impairment following critical illness.
- 27. 4. Hughes C, Girard T, Thompson J, Shintani A, Jefferson A, Ely E, Pandharipande P. Association of University Anesthesiologists 61st Annual Meeting. Association of University Anesthesiologists; Palo Alto, California. 2014; Role of markers of endothelial dysfunction and blood brain barrier injury in acute brain dysfunction.

University Talk

- 1. Hughes C, Riedel B, Pandharipande P. Benjamin Howard Robbins Scholar Seminar. Vanderbilt University School of Medicine; Nashville, Tennessee. 2008; Endothelial dysfunction as a predictor of intensive care unit delirium and long-term cognitive impairment.
- 2. Hughes C. Vanderbilt University Department of Anesthesiology Annual Anesthesiology Research Symposium. Vanderbilt University School of Medicine; Nashville, Tennessee. 2010; The role of endothelial dysfunction in intensive care unit delirium.
- 3. Hughes C. Vanderbilt University Department of Anesthesiology Annual Anesthesiology Research Symposium. Vanderbilt University School of Medicine; Nashville, Tennessee. 2011; Endothelial health in prevention of ICU brain dysfunction.
- 4. Hughes C. Vanderbilt University Department of Anesthesiology Annual Anesthesiology Research Symposium. Vanderbilt University Department of Anesthesiology; Nashville, Tennessee. 2013; ICU brain dysfunction and the endothelium.
- 5. Hughes C. Vanderbilt University Department of Anesthesiology Annual Anesthesiology Research Symposium. Vanderbilt University Department of Anesthesiology; Nashville, Tennessee. 2014; Blood brain barrier and endothelial injury in delirium.

Medically Challenging Cases

- 1. Hughes C, Waldman J, Barrios J, Robertson A. American Society of Anesthesiologists Annual Meeting. American Society of Anesthesiologists; San Francisco, California. 2007; Post-shunt hemochromatosis leading to cardiogenic shock in a patient presenting for orthotopic liver transplant.
- 2. Sandall J, Hughes C, Wells R, Kilkelly S. American Society of Anesthesiologists Annual Meeting. American Society of Anesthesiologists; New Orleans, Louisiana. 2009; Diaphragmatic hernia resulting in cardiac tamponade physiology.

Invited Presentation - Regional

1. Hughes C. Lee Memorial Health System Critical Care Conference. Lee Memorial Health System; Fort Myers, Florida. 2012; Best sedation practices in the ICU: a liberation and animation strategy.

Invited Presentation - National

1. Hughes C. ADS 2014 Research Plenary Symposium: Focus on Clinical Manifestations of Brain Injury. American Delirium Society; Baltimore, Maryland. 2014; Blood brain barrier and endothelial injury in delirium.

Invited Presentation - International

- 1. Hughes C. 31st National Congress of the Spanish Society of Anesthesiology; Spanish Society of Anesthesiology; Malaga, Spain. 2013; Dexmedetomidin: an overview of clinical use.
- 2. Hughes C. 31st National Congress of the Spanish Society of Anesthesiology. Spanish Society of Anesthesiology; Malaga, Spain. 2013; ICU sedation strategies to improve patient outcomes.
- 3. Hughes C. Society of Critical Care Medicine s 42nd Critical Care Congress, Anesthesiology business meeting. Society of Critical Care Medicine; San Juan, Puerto Rico. 2013; Acute brain dysfunction and the endothelium.
- 4. Hughes C. U13 Conference Series; Delirium in Older Adults: Finding Order in Disorder. National Institute on Aging, the American Geriatrics Society, and the John A. Hartford Foundation; Bestheda, Maryland. 2014; Blood brain barrier in delirium.
- 5. Hughes C. Pan American and Iberian Congress of Critical Care Medicine and Intensive Care. Madrid, Spain. 2014; The impact of delirium in the intensive care unit.
- 6. Hughes C. Pan American and Iberian Congress of Critical Care Medicine and Intensive Care. Madrind, Spain. 2014; Cognitive impairment after critical illness.