

Course Program

# Global Neuro Online Certificate Course—Fundamentals of Neurotrauma Care for Nurses

May 9 – September 12, 2024



## Course Description

This online certificate course program will combine lectures, tutorials, case studies, and skills videos to increase participants' basic understanding of evidence-based practice in neurotrauma. The self-paced video lectures will be available in a repository for remote access during the 18-week program duration. Participants can interact with other participants and faculty through a Forum. This tool allows participants to ask questions or post comments regarding a lecture in a module. Discussions will be available to all attendees in a repository form.

Recommended reading material is provided in advance to enhance the interactive learning experience.

## Course program

The program is organized into twelve modules, sixty-four lectures, and ten skills videos. Each will be evaluated with a multiple-choice test, with an overall minimum required score of 70%. At the end of the twelve modules, participants will need to complete a final exam divided into two parts evaluating the whole program's content, which will be performed online.

It's important to note that the minimum required score for certification is 7.0/10 (70%). This score is calculated based on the sum of the module exams (60%) and the final exam (40%).

## Target audience

This Global Neuro course was developed for nurses and is dedicated to the integral management of neurotrauma and complex and interdisciplinary patient care.

## Learning Outcomes

By completing this course, participants will be better able to:

- Describe neurotrauma epidemiology worldwide and how different types of injuries can affect patients in different age groups.
- Develop an improved knowledge of anatomy and physiology and pathophysiology following injury of the brain and spine.
- Discuss the evidence base that supports nursing care for patients with External Ventricular Drains.
- Develop appropriate assessment and management skills for neurotrauma patients within different resource availability, utilizing protocols, guidelines, consensus, and evidence-based interventions in delivering patient care and improving outcomes.
- Develop the appropriate nursing skills to apply to the prehospital, emergency care, surgical, critical care, post-acute and rehabilitative care of neurotrauma patients.
- Demonstrate an understanding of care required in complex cases and in neurotrauma care related complications.

## Chairperson



**Karen March MN, CCRN, CNRN**  
Neurocritical Care Educational Consultant

## Faculty

Amaya Alvarez Aquino MD	Meditech Foundation	Cali, COL
Andres Rubiano MD, PhD (C), IFAANS, TAPH (HC)	El Bosque University, Meditech Foundation, ValleSalud Clinical Network and AANS/CNS Neurotrauma and Critical Care Joint Section	Cali, COL
Anita Fetzick MSN, RN	University of Pittsburg	Pittsburg, USA
Ava Puccio RN, PhD	University of Pittsburg	Pittsburg, USA
Berhioska Perez MD	Meditech Foundation	Cali, COL
Cathy Cartwright DNP, RN-BC, PCNS, FAAN	Children's Mercy Kansas City	Kansas City, USA
Debra Hemmerle PhD, RN	UCSF Brain & Spinal Injury Center	San Francisco, USA
Ernest Barthelemy MD, MPH, MA	Downstate Health Sciences University	Brooklyn, USA
Franly Arismendi Vasquez MD	Dr. Salvador B. Gautier Hospital	Santo Domingo, DOM
Gail Rosseau MD	George Washington University School of Medicine and Health Sciences	Washington D.C., USA
Jeffrey Rosenfeld MD, FAHMS, FTSE	Monash University	Melbourne, AUS
Joacir Graciolli Cordeiro, MD, PhD	Jackson North Medical Center, Veterans Affairs Miami, and University of Miami Hospital	Miami, USA
Karol Martínez MD	Meditech Foundation, University El Bosque	Bogota, COL

Kee Park MD	Harvard Medical School	Boston, USA
Kimberly S. Meyer, CNRN, APRN, PhD	University of Louisville	Louisville, USA
Kristen Ghoussaini PNP, MSN	UCSF Benioff Children's Hospital	Oakland, USA
Lawrence Chyall RN, CNS	Zuckerberg San Francisco General Hospital and Trauma Center	San Francisco, USA
Maria Coreena Velasco AG-ACNP-BC	Zuckerberg San Francisco General Hospital and Trauma Center and University of California, San Francisco	San Francisco, USA
Mary McKenna Guanci MSN, RN, CNRN, SCR N	Clinical Nurse Specialist Neuroscience- retired and American Association of Neuroscience Nurses	Arlington, USA
Mary Kay Bader MSN, RN, CCNS, CCRN, CNRN, SCR N, FAHA, FNCS	NCS and Providence Mission Hospital	Mission Viejo, USA
Megan Suttles PA-CMHS	UCSF Benioff Children's Hospital	San Francisco, USA
Michael C. Dewan MD, MSCI	Vanderbilt University	Nashville, USA
Pat Blissitt PhD, ARNP-CNS, CCRN, CNRN, SCR N, CCNS, CCM, ACNS-BC	Harbourview Medical Center, Providence-Swedish Medical Center, and University of Washinton	Seattle, USA
Rachel Malloy DNP, RN, CNRN, SCR N	Natus Medical Incorporated	Merrit Island, USA
Rebecca Silvers PNP, DNP	University of California San Francisco	San Francisco, USA
Rennan Ribeiro BSN. RN, CCRN, CNRN, ENLS	Brain4Care and University of Sao Paulo	Sao Paulo, BRA
Rita de Cássia Almeida Viera RN BSN, PhD	School of Nursing at the University of São Paulo and Federal University of Sergipe	Sao Paulo, BRA
Scout Hebinck MSN, RN-C	University of California San Francisco	San Francisco, USA
Sebastián Vásquez-García MD	Clinica del Country and Meditech Foundation	Bogota and Cali, COL
Theresa Green	University of Queensland	Brisbane, AUS
Tracey Berlin MSN-Ed, RN, CNRN, CCRN-K	NeurOptics, Inc	Norristown, USA
Twyila Lay MS, ACNP-BC	UCSF Brain & Spinal Injury Center	San Francisco, USA

# Agenda

AGENDA	RESPONSIBLE / ASSIGNEE
<b>Module 1: Neurotrauma Care Systems and the Impact of the Disease</b>	<b>May 9, 2024</b>
L1: Epidemiology of TBI in High Income Settings	Michael C. Dewan MD, MSCI (USA)
L2: Epidemiology of TBI in Low- and Middle-Income Settings	Ernest Barthelemy MD, MA, MPH (USA)
L3: Trauma Systems and Organized Neurotrauma Care	Andres Rubiano MD, PhD, IFAANS, FACS (COL)
L4: Neurotrauma Care Systems in Disasters and in Rural Settings	Jeffrey Rosenfeld MD (AUS)
L5: Neurotrauma in the Context of Global Neurosurgery	Kee Park MD (USA)
L6: Prevention strategies in Neurotrauma	Gail Rosseau MD, FAANS, FACS (USA)
<b>Exam module 1</b>	
<b>Module 2: Neurotrauma Anatomy and Physiology and Fundamental Concepts</b>	<b>May 21, 2024</b>
L1: Cranial Anatomy Part I	Karen March RN, MN (USA) RN, MN (USA)
L2: Cranial Anatomy Part II	Karen March RN, MN (USA)
L3: Patterns of Primary Brain Injury in Neurotrauma	Ava Puccio RN, PhD (USA)
L4: Secondary Injuries in Cranial Neurotrauma / Biomarkers	Anita Fetzick MSN, RN (USA) & Ava Puccio RN, PhD (USA)
L5: Brain Edema Concepts	Andres Rubiano MD, PhD, IFAANS, FACS (COL)
<b>Exam module 2</b>	
<b>Module 3: Concepts and Assessments in Neurotrauma</b>	<b>May 28, 2024</b>
L1: Concepts of Intracranial Pressure and Herniation Syndromes	Rebecca Silvers DNP, CPNP-AC CCRN RNFA (USA)
L2: Concepts of Cerebral Perfusion & Autoregulation	Karen March RN, MN (USA)
L3: Initial Assessment and Management of the Neurotrauma Patient	Rennan Ribeiro RN BSN, CCRN, CNRN, ENLS (BRA)/ Rita de Cassia Almeida RN BSN, PhD (BRA)
<b>Skills Video 1: Initial Assessment</b>	<b>Karen March RN, MN (USA)</b>

AGENDA	RESPONSIBLE / ASSIGNEE
L4: Neuro Assessment	Rennan Ribeiro RN BSN, CCRN, CNRN, ENLS (BRA) / Rita de Cassia Almeida RN BSN, PhD (BRA)
<b>Skills Video 2: Neurologic Assessment</b>	<b>Karen March RN, MN (USA)</b>
<b>Exam module 3</b>	
<b>Module 4: Neurotrauma Imaging and Surgical Management</b>	
<b>June 4, 2024</b>	
L1: Neuroimaging of the head – CT and MRI	Rachel Malloy DNP, RN, CNRN, SCRNP (USA)
L2: Surgical Management – Hematoma removal, Craniectomy, Skull fractures	Kristen Ghossaini CPNP (USA)
L3: Infection prevention and management of the skull	Berhioska Perez MD (COL)/ Karol Martinez MD (COL) (voice)
<b>Exam module 4</b>	
<b>Module 5: Neuro Monitoring</b>	
<b>June 11, 2024</b>	
L1: External Ventricular Drains (EVDs) Insertion, Setup, Dressing, & Infection control	Megan Suttles PA-C (USA)
L2: Intracranial Pressure Monitoring (ICP)	Lawrence Chyall RN, MS, CNS (USA)
<b>Skills Video 3: EVD Setup &amp; Management</b>	
<b>Karen March RN, MN (USA)</b>	
L3: Brain Tissue Oxygen and Cerebral Perfusion Monitoring	Lawrence Chyall RN, MS, CNS (USA)
L4: Brain Temperature Monitoring in TBI	Mary Mckenna Guanci MSN, RN, CNRN, SCRNP, FNCS (USA)/ Karen March RN, MN (USA)
L5: Cerebral Microdialysis (CMD)	Tracey Berlin MSN-Ed, RN, CNRN, CCRN (USA)
L6: Electrophysiologic Monitoring: Electroencephalogram (EEG) & Evoked Potential (EP) Monitoring in Trauma	Tracey Berlin MSN-Ed, RN, CNRN, CCRN (USA)
<b>Exam module 5</b>	
<b>Module 6: Traumatic Brain Injury Guidelines</b>	
<b>June 18, 2024</b>	
L1: Overview of Traumatic Brain Injury Guidelines	Maria Coreena Velasco AGACNP-BC (USA)

AGENDA	RESPONSIBLE / ASSIGNEE
L2: Triage management of ICU beds and criteria of transfer to ICU	Karen March RN, MN (USA)
L3: The BOOTSTRAP Protocols for TBI (Basic PHC-ER and OR)	Karol Martinez MD (COL)
L4: Consensus-based Management Protocol (CREVICE Protocol)	Karol Martinez MD (COL)
L5: Early Management of Severe Traumatic Brain Injury (sTBI) without neurosurgical capabilities-World Society of Emergency Surgery WSES recommendations	Amaya Alvarez MD (CUB) / Elizabeth Rueedi (voice)
L6: Task Shifting/Task Sharing	Franly Vasquez MD (DOM)/ Daniel Garraty (voice)
<b>Exam module 6</b>	
<b>Module 7: Best Practices of Basic Nursing Care</b>	
<b>June 25, 2024</b>	
L1: Designing a Protocol using Evidence Base or Best Practice	Karen March RN, MN (USA)
L2: Evidence based or Best Practices of Basic Nursing care: Airway & Breathing	Karen March RN, MN (USA)
L3: Evidence based or Best Practices of Basic Nursing care: Circulation – Hemodynamics, Monitoring urine output, DVT Prophylaxis	Karen March RN, MN (USA)
L4: Evidence based or Best Practices of Basic Nursing care: Prevention of decubitus & Positioning	Rachel Malloy DNP, RN, CNRN, SCRNI (USA)
<b>Skills Video 4. Best Head of Bed Positioning, Turning and Contracture Prevention</b>	
L5: Temperature Management in the Neuroscience Patient	Mary MacKenna Guanci MSN, RN, CNRN, SCRNI, FNCS (USA)
<b>Skills Video 5: Shivering Assessment</b>	
L6: Time in Seizure is Brain: Seizure Assessment and Interventions	Mary Kay Bader RN, MSN, CCNS, FNCS, FAHA, FCCM (USA)
L7: Evidence based or Best Practices of Basic Nursing care: Nutrition, Glucose and Gastrointestinal Prophylaxis	Rachel Malloy DNP, RN, CNRN, SCRNI (USA)
<b>Exam module 7</b>	
<b>Module 8: Critical Care Management of the Neurotrauma Patient</b>	
<b>July 2, 2024</b>	



AGENDA	RESPONSIBLE / ASSIGNEE
L1: Management of Intracranial Hypertension	Twyila Lay CCRN, ANP-BC, ANCP-BC (USA)
L2: Critical Care Management of Brain Hypoxia	Mary Kay Bader RN, MSN, CCNS, FNCS, FAHA, FCCM (USA)
L3: Critical Care Management of Cerebral Perfusion Pressure (CPP)	Mary Kay Bader RN, MSN, CCNS, FNCS, FAHA, FCCM (USA)
L4: Advances in Care: The Future	Joacir Graciolli MD, PhD (USA)

**Exam module 8**

**Module 9: Spinal Care Management of the Neurotrauma Patient**

July 9, 2024

L1: Review of Spinal Anatomy	Karen March RN, MN (USA)
L2: Spinal Neurotrauma: Current Concepts in Pathophysiology	Pat Blissitt PhD, ARNP-CNS, CCRN, CNRN, SCRN, CCNS, CCM, ACNS-BC (USA)
L3: Spinal Cord Assessment	Rennan Ribeiro RN BSN, CCRN, CNRN, ENLS (BRA)/ Rita de Cassia Almeida RN BSN, PhD (BRA)

**Skills Video 6: Spinal Assessment**

Karen March RN, MN (USA)

L4: Neuroimaging of the Spine – CT and MRI	Rachel Malloy DNP, RN, CNRN, SCRN (USA)
L5: Surgical Management – Spine stabilization	Scout Hebinck MSN, RN-C (USA)
L6: Critical Care Management of Spinal Cord Injuries	Debra Hemmerle RN, PhD (USA) / Maria Coreena Velasco AGACNP-BC (USA)

**Skills Video 7: Cervical Collar Fitting**

Karen March RN, MN (USA)

**Skills Video 8: Ace Wraps of Legs, Abdominal Binder, and Pressure Relief**

Karen March RN, MN (USA)

**Exam module 9**

**Module 10: Management of Special Neurotrauma Populations**

July 16, 2024

L1: Management of Neurotrauma Patients with Coagulopathy	Mary Kay Bader RN, MSN, CCNS, FNCS, FAHA, FCCM (USA)
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AGENDA	RESPONSIBLE / ASSIGNEE
L2: Management of Elderly Patients with TBI	Amaya Alvarez MD (CUB) / Elizabeth Rueedi (voice)
L3: Management of Pediatric Patients with TBI	Rebecca Silvers DNP, CPNP-AC CCRN RNFA (USA)
L4: Management of Patients with Post-traumatic Hydrocephalus	Cathy Cartwright DPN, RN-BC, PCNS, FAAN (USA)
L5: Management of Patients with Sodium Disorders after TBI	Pat Blissitt PhD, ARNP-CNS, CCRN, CNRN, SCRN, CCNS, CCM, ACNS-BC (USA)
L6: Management of Complex Post Traumatic Epilepsy	Sebastian Vasquez Garcia MD (COL)
<b>Exam module 10</b>	
<b>Module 11: Post-Acute Care of the Neurotrauma Patients</b>	
<b>July 23, 2024</b>	
L1: Paroxysmal Sympathetic Hyperactivity after Traumatic Brain Injury	Kimberly Meyer PhD, APRN, CNRN (USA)
L2: Post-Acute Spasticity Care	Theresa Green RN, PhD (AUS)
L3: Heterotopic Ossification (HO)	Theresa Green RN, PhD (AUS)
L4: Post-Acute Care of Mobility	Theresa Green RN, PhD (AUS)
<b>Skills Video 9: Mobilizing Neurotrauma Patients</b>	
L5: Neuro-Endocrine Dysfunction & treatment – Anterior Pituitary Dysfunction	Rennan Ribeiro RN BSN, CCRN, CNRN, ENLS (BRA)
<b>Exam module 11</b>	
<b>Module 12: Principles of Rehabilitation and Family Interventions</b>	
<b>July 30, 2024</b>	
L1: Defining COMA: Persistent Vegetative State, Minimally Conscious State	Sebastian Vasquez Garcia MD (COL)
L2: Principles of Rehabilitation of Traumatic Brain Injury Patients	Theresa Green RN, PhD (AUS)
<b>Skills Video 10: Cognitive Aid and Adaptive Devices for Activities of Daily Living</b>	
L3: Management of Persistent Post Concussive Symptoms	Sebastian Vasquez Garcia MD (COL)
L4: Principles of Rehabilitation of Traumatic Spinal Cord Injury Patients	Theresa Green RN, PhD (AUS)

AGENDA	RESPONSIBLE / ASSIGNEE
L5: Family Intervention	Twyila Lay CCRN, ANP-BC, ANCP-BC (USA)
L6: Neuroprognostication, Brain Death, and the Neuroscience Nurse Role	Mary MacKenna Guanci MSN, RN, CNRN, SCRN, FNCS (USA)
Exam module 12	
Final Exams	(July 30– Sept 12, 2024)