Course Description

The 7th Annual UC San Diego Essentials and Advances in Apheresis will build on the great success of the first six conferences. This 2½-day multidisciplinary program is designed to appeal to first time attendees and to returning participants. Expert reviews of the essentials will be augmented with selected new topics and discussions of advances and innovations.

- Nationally and internationally recognized leaders will present didactic sessions and conduct interactive discussions
- Fundamentals will include in-depth reviews of basic principles, procedures, prescribing, clinical management and care of special populations
- Updates on selected disease indications will be supplemented by case studies and new clinical science
- Symposia will review plasma exchange, cell apheresis modalities, technology innovations, billing practices and program management
- The popular concurrent sessions on Frontiers in Apheresis Science and Expertise in Apheresis Practice will continue with updated topics
- Breakfast with the Experts will be offered for two days. Each session will focus on a different area of interest and will provide opportunities for interactive discussions
- Participants will be offered interactive small group sessions led by experienced practitioners focused on various techniques and machines used in therapeutic apheresis
- Conference attendees will have the opportunity to submit challenging cases for discussion during a daily expert panel session

Target Audience

The target audience for this initiative includes physicians and allied health professionals interested in therapeutic apheresis, including both established practitioners and those embarking on a new apheresis service. The content is aimed at nephrologists, hematologists, clinical pathologists, blood bankers and nurses.

Overall Program Objectives

After completing the didactic sessions, participants should be able to:

- Review current clinical indications for therapeutic plasmapheresis, photopheresis and other cytapheresis procedures, per ASFA guidelines
- Discuss options for vascular access, anticoagulation, and prescription for the various apheresis techniques, and their associated complications
- Recognize and describe important pharmacologic issues that arise with apheresis procedures, including timing of administration and drug removal, as well as impact on anticoagulation
- Identify apheresis techniques in specialized populations such as pediatrics, research collections, and CAR-T cell therapies
- Discuss apheresis program management issues, including reimbursement
- Recognize recent developments in clinical trials and the future of apheresis medicine

Small Group Sessions Learning Objectives

For each small group session completed, participant should be able to:

- Distinguish the apheresis modalities that can be performed by different types of apheresis equipment, such as centrifugal machines, membrane separators, secondary plasma purification and cell processing systems
- Describe the blood pathway configuration of each machine studied, and the operator-controlled adjustments that are typically needed
- Discuss the typical blood flow rate, anticoagulation and fluid replacement requirements of each machine studied
- Identify various vascular access options available for apheresis, including tips for successful peripheral IV placement as well as various port options
**Needs Assessment**

Apheresis is the process where whole blood is removed from a patient and dispensed into an instrument that is able to separate blood components. The goal behind this particular therapy is to remove the components of the blood associated with disease while retaining the remaining components back to the patient. This may or may not include replacing the removed component (Sanford & Balogun, 2011; Shelat, 2010). Conventional apheresis procedures utilize centrifugation and membrane filtration. Plasmapheresis is considered a manual method and is still used in pediatrics but not otherwise; currently, therapeutic plasmapheresis and therapeutic plasma exchange (TPE) are fully performed using machines. If replacement factor is utilized, fresh frozen plasma (FFP), 5% albumin or colloidal solution, or one’s own plasma following purification are the factors of choice (Ward, 2011).

Patients who are critically ill with autoimmune diseases are often selected for therapeutic apheresis. According to Shelat (2010), the American Society for Apheresis has categorized the indications for therapeutic apheresis into 4 categories according to illness and its supposed risk: benefit ratio. The benefits of apheresis include the “ability to rapidly, safely and isovolemically reduce the concentration of a pathologic factor or a component of blood” (Shelat, 2010, p. 778), while the risk of adverse events occurring from apheresis are less than 5%. According to Mokrzycki and Balogun (2011), there are four specific factors that can impact the occurrence of adverse events: anticoagulation type, replacement fluid type and volume, vascular access type, and the underlying disease state. Replacement factors may adversely affect certain patients, especially if FFP is used; thus, while TPE can be highly effective in reducing disease-causing factor in the plasma (Mokrzycki & Balogun, 2011), it is imperative that clinicians utilizing this type of therapy be highly trained and educated on possible side effects and when best to utilize this procedure. Although apheresis therapies are now an established and important part of treatment for many serious illnesses, utilization of apheresis is often delayed or not offered to many patients who would benefit. Thus, providing continued medical education in the form of an activity such as this will be useful for practicing clinicians to ensure they understand when to incorporate apheresis into treatment programs and how to manage any potential adverse effects.

**References**


**Accreditation Statement**

The University of California San Diego School of Medicine is accredited by the Accreditation Council for Continuing Medical Education (ACCME) to provide continuing medical education for physicians.

**AMA:** The University of California San Diego School of Medicine designates this live activity for a maximum of 19.75 AMA PRA Category 1 Credits™. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

Please note the maximum number of credits available for participation in the following session(s):

- General Session (Thursday, Friday, Saturday): A maximum of 18.25 AMA PRA Category 1 Credits™ available.
- Breakfast with the Experts (Friday) and General Session (Thursday, Friday, Saturday): A maximum of 19.0 AMA PRA Category 1 Credits™ available.
- Breakfast with the Experts (Saturday) and General Session (Thursday, Friday, Saturday): A maximum of 19.0 AMA PRA Category 1 Credits™ available.
- Breakfast with the Experts (Friday & Saturday) and General Session (Thursday, Friday, Saturday): A maximum of 19.75 AMA PRA Category 1 Credits™ available.

**AAPA:** AAPA accepts certificates of participation for educational activities certified for AMA PRA Category 1 Credit™ from organizations accredited by ACCME or a recognized state medical society. Physician assistants may receive a maximum of 19.75 hours of Category 1 credit for completing this program.

**Nurses:** For the purpose of recertification, the American Nurses Credentialing Center accepts AMA PRA Category 1 Credits™ issued by organizations accredited by the ACCME. For the purpose of relicensure, the California Board of Registered Nursing accepts AMA PRA Category 1 Credits™ (report up to 19.75 hours of credit and list “CME Category 1™ as the provider number).

**ABIM MOC:** Successful completion of this CME activity, which includes participation in the evaluation component, enables the participant to earn up to 18.25 Medical Knowledge MOC points in the American Board of Internal Medicine’s (ABIM) Maintenance of Certification (MOC) program. It is the CME activity provider’s responsibility to submit participant completion information to ACCME for the purpose of granting ABIM MOC credit.

**Cultural and Linguistic Competency:** This activity is in compliance with California Assembly Bill 1195 which requires continuing medical education activities with patient care components to include curriculum in the subjects of cultural and linguistic competency. Cultural competency is defined as a set of integrated attitudes, knowledge, and skills that enables health care professionals or organizations to care effectively for patients from diverse cultures, groups, and communities. Linguistic competency is defined as the ability of a physician or surgeon to provide patients who do not speak English or who have limited ability to speak English, direct communication in the patient’s primary language. Cultural and linguistic competency was incorporated into the planning of this activity. Additional resources can be found on the [UC San Diego CME website](https://cme.ucsd.edu).
7th Annual UC San Diego Essentials & Advances in Apheresis Therapies
March 7-9, 2019

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DISCLOSURE SUMMARY

7th Annual UC San Diego Essentials & Advances in Apheresis Therapies
March 7-9, 2019

It is the policy of the University of California, San Diego School of Medicine to ensure balance, independence, objectivity and scientific rigor. All persons involved in the selection, development and presentation of content are required to disclose any real or apparent conflicts of interest. All conflicts of interest will be resolved prior to an educational activity being delivered to learners through one of the following mechanisms 1) altering the financial relationship with the commercial interest, 2) altering the individual’s control over CME content about the products or services of the commercial interest, and/or 3) validating the activity content through independent peer review. All persons are also required to disclose any discussions of off label/unapproved uses of drugs or devices. Persons who refuse or fail to disclose are disqualified from participating in the CME activity. Participants will be asked to evaluate whether the speaker’s outside interests reflect a possible bias in the planning or presentation of the activity. This information is used to plan future activities.

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<tr>
<th>Name</th>
<th>Name of Commercial Interest</th>
<th>Nature of Relevant Relationship</th>
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<tr>
<td>Keith Berman</td>
<td>Fresenius Kabi</td>
<td>Consultant</td>
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<td>TerumoBCT</td>
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<tr>
<td>Laura Connelly-Smith</td>
<td>TerumoBCT</td>
<td>Speakers’ Bureau / Honorarium</td>
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<tr>
<td>Alicia Garcia</td>
<td>Blue Bird Bio</td>
<td>Advisory Panel</td>
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<td>Jan Hofmann</td>
<td>Fresenius Medical Care</td>
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<td>Theresa Latchford</td>
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<td>Don Siegel</td>
<td>Poseida Therapeutics</td>
<td>Scientific Board Member</td>
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<td>Grants / Research Support recipient</td>
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The following have no relevant financial relationships to disclose:

Lousany Abero          Stephanie Florence          Wolfgang Ries
Jill Adamski           Andrew Gayap              Elaine Rodil-Cadapan
Rasheed Balogun        Yeon Su Han              Grace Testerman
Richard Bandejas       Anita Ihasz-Davis         David Ward
Nadine Benador         Bethany Karl              Jeffrey Winters
Donna Braun            Patricia Kopko             Yun Yang
Marian Cabandong       Jade Kozuch               Joshua Zaritsky
Larry Cowgill          Jerel Malong              
Robyn Cunard           Isagani Marquez           

The CME staff, meeting planners, planning committee and CME committee reviewers other than listed above do not have any relevant financial relationships to disclose. This educational activity may contain discussion of unlabeled and/or investigational uses of agents that are not approved by the FDA. Please consult the prescribing information for each product. The views and opinions expressed in this activity are those of the faculty and do not necessarily reflect the views of the University of California, San Diego.
## PROGRAM AGENDA

### Thursday, March 7, 2019

<table>
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<tr>
<th>Time</th>
<th>Event</th>
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<tbody>
<tr>
<td>7:00</td>
<td>Continental Breakfast</td>
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<tr>
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<td><strong>Plenary Session 8:00 am – 3:00 pm</strong></td>
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<tr>
<td>8:00</td>
<td>Welcome and Introduction</td>
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<tr>
<td>8:10</td>
<td><strong>Principles and Prescription: An Overview of Apheresis Therapies</strong></td>
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<td>8:50</td>
<td><strong>Monitoring for Adverse Events During Apheresis Procedures</strong></td>
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<td>9:20</td>
<td><strong>Apheresis Hardware and Circuits</strong></td>
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<tr>
<td>9:50</td>
<td><strong>Q&amp;A</strong></td>
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<tr>
<td>10:05</td>
<td><strong>Refreshment Break</strong></td>
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<tr>
<td>10:30</td>
<td><strong>Pharmacological Considerations in the Apheresis Patient</strong></td>
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<td>10:50</td>
<td><strong>Updates From the Blood Bank</strong></td>
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<tr>
<td>11:20</td>
<td><strong>RBC Exchange</strong></td>
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<tr>
<td>11:40</td>
<td><strong>American Society for Apheresis (ASFA) Guidelines</strong></td>
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<tr>
<td>12:00</td>
<td><strong>Q&amp;A</strong></td>
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<tr>
<td>12:10</td>
<td><strong>Lunch Break</strong></td>
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<tr>
<td>1:15</td>
<td><strong>Pediatric Overview and Plasma Exchange</strong></td>
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<td>1:45</td>
<td><strong>LDL Apheresis for Focal Segmental Glomerulosclerosis (FSGS)</strong></td>
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<tr>
<td>2:15</td>
<td><strong>Extracorporeal Photopheresis (ECP): Overview &amp; Expanding Indications</strong></td>
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<td>2:45</td>
<td><strong>Q&amp;A</strong></td>
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<tr>
<td>3:00</td>
<td><strong>Refreshment Break</strong></td>
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Rotating Small Group Sessions 3:15 pm – 5:15 pm

FOCUS ON MACHINES AND TECHNIQUES

These small group sessions will offer attendees a unique interactive opportunity to study various techniques and machines used in therapeutic apheresis and learn about modalities that can be performed by different types of apheresis equipment, such as centrifugal machines, membrane separators, selective plasma processing methods and photopheresis systems. All attendees will rotate through four 30-minute sessions and will be provided with opportunities to address specific questions and practicalities.

Small Group Session Topics:
1. **Centrifugal Plasma Exchange and Cell Apheresis** – David M. Ward, MD, FRCP, HP (ASCP); Yun Yang, RN, QIA; Lousany Abero, BSN, RN, QIA; Richard Bandejas, BSN, RN
2. **Selective Plasma Processing and Photopheresis (ECP)** – Amber P. Sanchez, MD; Jerel Malong RN, QIA; Andrew Gayap, RN
3. **Membrane Plasma Separation** – Rasheed A. Balogun, MBBS, FACP, FASN, HP (ASCP); Donna Braun, RN, BSN, CNN
4. **Vascular Access Options** – Jill Adamski, MD, PhD; Laura Connelly-Smith, MBBCh, DM; Alicia Garcia, RN, HP (ASCP)™; Marian Cabandong, BSN, RN; Yeon Su Han, BSN, RN, QIA

5:15 – Adjourn for the Day

5:15 – 5:45 pm  Apheresis Equipment Open Session *(Non-Accredited)*

Friday, March 8, 2019

7:00 - 7:45 am  BREAKFAST WITH THE EXPERTS
Optional Session [0.75 credits will be awarded for this session]
Select ONE during the registration process. Cost: $20. Space is limited.
1. Experts: Joseph Schwartz, MD, MPH; Jeffrey L. Winters, MD; Laura Connelly-Smith, MBBCh, DM – Apheresis for Neurologic & Hematologic Diseases
2. Experts: David M. Ward, MD, FRCP, HP (ASCP); Jill Adamski, MD, PhD; Larry Cowgill, DVM – Advances in Apheresis Applications
3. Experts: Nadine M. Benador, MD; Joshua J. Zaritsky, MD, PhD – Pediatric Apheresis Indications and Patient Management
4. Experts: Amber P. Sanchez, MD; Jan C. Hofmann, MD, MPH, MSc; Rasheed A. Balogun, MBBS, FACP, FASN, HP (ASCP) – Medical Directorship: Hospital, Clinic, and Mobile Programs
5. Experts: Theresa Latchford, RN, MS, CNS, AOCNS, BMTCN; Donna Braun, RN, BSN, CNN; Elaine Rodill-Cadapan, RN, QIA; Grace Testerman, RN, QIA – Best Nursing Practices (Including Pre and Post Patient Care)
6. Experts: Isagani I. Marquez, Jr., RN, MSN, QIA and Alicia Garcia, RN, HP (ASCP)™ – Nursing Leadership of Apheresis Programs

7:00  Continental Breakfast

Plenary Session 8:00 am – 12:10 pm

8:00  Announcements

ADVANCES IN CELL THERAPIES

8:05  Global Aspects in Cellular Therapy: Science, Standards, and Medical Tourism – Joseph Schwartz, MD, MPH

8:45  Update on CAR-T Cell Therapies – Don Siegel, MD, PhD
<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Speaker(s)</th>
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<tbody>
<tr>
<td>9:25</td>
<td>The Patient Experience</td>
<td>Stephanie Florence</td>
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<tr>
<td>9:55</td>
<td>Q&amp;A</td>
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<td>10:05</td>
<td>Refreshment Break</td>
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<td></td>
<td><strong>PATIENTS AND POLICY</strong></td>
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<tr>
<td>10:30</td>
<td>Practicalities of Apheresis Collections for Immune Effector Cell Therapies</td>
<td>Laura Connelly-Smith, MBBCh, DM</td>
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<tr>
<td>11:00</td>
<td>Lessons from Veterinary Apheresis</td>
<td>Larry Cowgill, DVM</td>
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<tr>
<td>11:25</td>
<td>Specialized Apheresis Reimbursement: From a Billing Code to Coverage Chaos</td>
<td>Keith Berman, MPH, MBA</td>
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<tr>
<td>11:55</td>
<td>Q&amp;A</td>
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<td>12:10</td>
<td>Lunch Break</td>
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<td><strong>Concurrent Sessions 1:15 pm – 3:00 pm</strong></td>
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<td></td>
<td><strong>FRONTIERS IN APHERESIS SCIENCE</strong></td>
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<td>1:15</td>
<td>Generating New Cell Therapies from Scratch</td>
<td>Don Siegel, MD, PhD</td>
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<td>1:45</td>
<td>New Developments in Selective Plasma Purification</td>
<td>Wolfgang Ries, MD</td>
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<td>2:15</td>
<td>Essential Apheresis Manuscript Elements: The Journal of Clinical Apheresis Editor-in-Chief’s Experience and Perspective</td>
<td>Jeffrey L. Winters, MD</td>
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<td>2:45</td>
<td>Q&amp;A</td>
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<td>3:00</td>
<td>Refreshment Break</td>
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<td></td>
<td><strong>EXPERTISE IN APHERESIS PRACTICE</strong></td>
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<tr>
<td>1:15</td>
<td>Technical and Behavioral Challenges of TPE in Patients With Anti-NMDA Receptor Encephalitis</td>
<td>Alicia Garcia, RN, HD (ASCP)™</td>
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<tr>
<td>1:45</td>
<td>Experience with Plasma Exchange for Neurologic Diseases Using a Membrane Plasma Separator System</td>
<td>Donna Braun, RN, BSN, CNN</td>
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<tr>
<td>2:15</td>
<td>Practical Aspects to Caring For the Patient Receiving CAR-T Cell Therapy</td>
<td>Theresa Latchford, RN, MS, CNS, AOCNS, BMTCN</td>
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<tr>
<td>2:45</td>
<td>Q&amp;A</td>
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<td>Refreshment Break</td>
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<td>Time</td>
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<tr>
<td>3:30</td>
<td><strong>Telemedicine in Apheresis</strong> – Jan C. Hofmann, MD, MPH, MSc</td>
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<td>3:55</td>
<td><strong>Apheresis in Developing Nations</strong> – Rasheed A. Balogun, MBBS, FACP, FASN, HP (ASCP)</td>
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<tr>
<td>4:20</td>
<td><strong>Q&amp;A</strong></td>
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<tr>
<td>4:30</td>
<td><strong>Cases for the Experts: Panel Discussion</strong> – David M. Ward, MD, FRCP, HP (ASCP); Jeffrey L. Winters, MD; Jill Adamski MD, PhD; Joseph Schwartz, MD, MPH; Laura Connelly-Smith, MBBCh, DM; Jan C. Hofmann, MD, MPH, MSc; Alicia Garcia, RN, HP (ASCP)™</td>
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<tr>
<td>5:00</td>
<td><strong>Q&amp;A</strong></td>
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<tr>
<td>5:15 pm</td>
<td>Adjourn for the Day</td>
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**Saturday, March 9, 2019**

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<thead>
<tr>
<th>Time</th>
<th>Session</th>
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<tbody>
<tr>
<td>7:00 - 7:45 am</td>
<td><strong>BREAKFAST WITH THE EXPERTS</strong>&lt;br&gt;Optional Session [0.75 credits will be awarded for this session]&lt;br&gt;Select ONE during the registration process. Cost: $20. Space is limited.</td>
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<tr>
<td></td>
<td>1. <strong>Experts:</strong> Don Siegel, MD, PhD; Joseph Schwartz, MD, MPH; Laura Connelly-Smith, MBBCh, DM – Cellular Therapies: BMT and Immune Effector Cells</td>
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<td>2. <strong>Experts:</strong> Jeffrey L. Winters, MD and Jill Adamski, MD, PhD – Plasma Exchange and Photopheresis: Applications, Including Uncertain Indications</td>
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<td>3. <strong>Experts:</strong> Jan C. Hofmann, MD, MPH, MSc; Patricia M. Kopko, MD; Robyn Cunard, MD – RBC Exchange, WBC Depletion, and Transfusion Medicine</td>
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<td>4. <strong>Experts:</strong> David M. Ward, MD, FRCP, HP (ASCP) and Joshua J. Zaritsky, MD, PhD – Plasma Exchange and LDL Apheresis: Standard and Novel Applications</td>
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<td>5. <strong>Experts:</strong> Amber P. Sanchez, MD; Alicia Garcia, RN, HP (ASCP)™; Isagani I. Marquez, Jr., RN, MSN, QIA – Vascular Access: Medical and Nursing Strategies</td>
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<td>6. <strong>Experts:</strong> Rasheed A. Balogun, MBBS, FACP, FASN, HP (ASCP); Keith Berman, MPH, MBA; Anita Ihasz-Davis – Apheresis Reimbursement and Authorization</td>
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<td>7:00</td>
<td>Continental Breakfast</td>
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**Plenary Session 8:00 am – 12:10 pm**

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<th>Time</th>
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<tr>
<td>8:00</td>
<td><strong>Announcements</strong></td>
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**CLINICAL CHALLENGES IN APHERESIS MEDICINE**

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<tr>
<td>8:05</td>
<td>Literature Review: The Year in Apheresis – Jan C. Hofmann, MD, MPH, MSc</td>
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<tr>
<td>8:35</td>
<td>Update in New Treatments for Thrombotic Thrombocytopenic Purpura (TTP) – Don Siegel, MD, PhD</td>
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<tr>
<td>9:00</td>
<td>Role of Plasma Exchange in Non-TTP Thrombotic Microangiopathies – Jeffrey L. Winters, MD</td>
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<tr>
<td>9:30</td>
<td><strong>Q&amp;A</strong></td>
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<td>9:45</td>
<td>Refreshment Break</td>
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<td>Time</td>
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<tr>
<td>10:05</td>
<td>Plasma Exchange for Renal Diseases</td>
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<tr>
<td>10:35</td>
<td>Plasma Exchange in Neurologic Diseases</td>
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<tr>
<td>11:05</td>
<td>Q&amp;A</td>
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<tr>
<td>11:20</td>
<td>Cases for the Experts: Panel Discussion</td>
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<tr>
<td>11:50</td>
<td>Q&amp;A</td>
</tr>
<tr>
<td>12:05</td>
<td>Closing Remarks</td>
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<tr>
<td>12:10</td>
<td>Final Adjournment</td>
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