Necrotizing Enterocolitis Symposium:
A Transdisciplinary Approach to Improved Outcomes

April 5 – 7, 2017
WEDNESDAY – FRIDAY

UC Davis Conference Center
Davis, CA

Sponsored by:
UC DAVIS HEALTH SYSTEM
Office of Continuing Medical Education
and Division of Neonatology
NECROTIZING ENTEROCOLITIS SYMPOSIUM: A Transdisciplinary Approach to Improved Outcomes

ACKNOWLEDGMENT: This course is sponsored by the NEC Society, with support from a Patient-Centered Outcomes Research Institute (PCORI) Eugene Washington Engagement Award, and the NEC Society’s generous community of supporters.

Wednesday, April 5, 2017

1:00 pm Registration
1:00 Strategies to Increase NEC Awareness and Funding
The lack of awareness, funding and prioritization of necrotizing enterocolitis have resulted in stagnant morbidity and mortality rates for over 30 years. The family-patient advocates within the NEC Society represent nearly all 50 U.S. states and 20 different countries, yet everyone agrees: they were blindsided by their baby’s NEC diagnosis. In this session, the NEC Society’s leadership team will explore strategies to increase awareness, funding and prioritization of necrotizing enterocolitis.
Jennifer Carvasser, MSW, Founder and Director of the NEC Society
2:15 Break
2:30 Evidence-Based Techniques to Enhance Quality of Life for Premature Infants and Their Families
Premature infants are often hospitalized for long periods of time. NICU parents report feeling overwhelmed, disempowered, and in a state of shock. How do we nurture infants who are often isolated for hours, days, weeks or even months, when developmentally, they are still supposed to be engulfed in their mother’s warmth? What are the best ways to promote infant-parent bonding? This session will explore evidence-based techniques that enhance the quality of life for premature infants and their families, with an emphasis on music therapy, kangaroo care, the built physical environment, and pediatric palliative care.
Erin Umberger, deputy director of the NEC Society, Registered Architect
6:00 Welcome Reception
UC Davis Conference Center

Thursday, April 6, 2017

7:15 Registration, continental breakfast, visit posters and exhibits
7:45 Welcome, Introduction, Course Objectives
Mark Underwood, MD, Jennifer Carvasser, MSW, Founder – NEC Society
8:00 Keynote: NEC Historical Perspectives and Future Directions
Michael Caplan, MD
9:00 Innate Immunity and NEC
This session is dedicated to Hope Marie Luchsinger
Current thoughts on pathophysiology will be discussed, including epithelial and cellular components of NEC, the role of the immune system, and host-microbe interactions.
Steven McElroy, MD, Jorn-Hendrik Weitkamp, MD, Ravi Patel, MD, MSc
10:15 Refreshment Break, posters, visit exhibits
10:30 Probiotics and NEC
This session is dedicated to Noah Michael Propst
Do probiotics prevent NEC? We will discuss what is known and unknown about probiotics and NEC, including the case for probiotics in premature infants, impact of cross feeding of gut microbes, comparison of commercially available probiotics, and future directions.
Mark Underwood, MD, David A. Mills, PhD; Keith Barrington, MB, CHB
11:45 Lunch (included in tuition)
Join us at a table topic of your choice and participate in the conversation as we share experiences, perspectives, and new research. Each table will feature a facilitator and family-patient advocate.

Thursday - Continued

1:00 WORKGROUP BREAKOUT SESSIONS
Participants will choose to attend two different workgroup sessions, the first at 1 pm, and the second at 2 pm. These 50 minute sessions will be interactive, participants are encouraged to share their expertise and experience to advance the session’s objectives. The workgroup chairs will synthesize each session’s key points and report back to the full group prior to the poster presentations.

1 Development of a Necrotizing Enterocolitis Prevention Checklist
While NEC pathogenesis remains a topic of research, some NICUs are “getting to zero” rates of NEC by adopting evidence based practices to prevent the disease. This workgroup will leverage lessons learned, evidence on NEC prevention, and clinical successes to create a checklist for NEC prevention. Clinicians, researchers and parents are all needed to move NEC to zero.
Sheila Geppert, PhD, RN; Rebecca Vartanian, MD

2 Developing a Necrotizing Enterocolitis Registry and Biorepository
To better understand the development and progression of NEC in patients, researchers must reach beyond traditional animal models of NEC. Access to a large array of human intestinal tissue and other biological specimens would allow for better understanding of progression of disease and for the identification of predictive markers that could aid in risk stratification. This working group aims to discuss how to best prepare and fund a biological repository that also links patient demographic and clinical data to each specimen. Topics of discussion include central versus virtual repositories, funding considerations, utilization of multicenter IRB networks, and database management.
Steven McElroy, MD; Troy Markel, MD; David Hackam, MD, PhD

3 Defining NEC
Necrotizing enterocolitis has long been “defined” clinically through the use of Bell’s staging system. This was originally designed to help determine which infants with NEC were most likely to require surgery but rapidly became the dominant paradigm. The development of a new definition of NEC that better describes the broad range of mechanisms of pathogenesis underlying NEC would improve the quality of the data we collect and our capacity to measure improvement in outcomes.
Alexander Penn, PhD; Phillip Gordon, MD, PhD

4 Enhancing Parent Engagement and Empowerment
This session is dedicated to Lydia and Carol Nell
Many NICU parents report feeling disempowered regarding the care and decisions involving their fragile infants. These NICU parents seek increased collaboration with their infants’ providers to foster their knowledge and engagement. Practitioners must value and prioritize the empowerment of parents and deliberately increase parental involvement in the NICU. Barriers to fully engaging parents will be explored, with solutions suggested to surmount these barriers.
Erin Umberger, bereaved mother and deputy director of the NEC Society. Sue Hall, MD; Kathleen Marinelli, MD

Mothers are welcome to breastfeed their child anywhere throughout the conference. A lactation room will be available for mothers who prefer privacy.
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Friday, April 7, 2017

Biomarkers and Biology of NEC: Keynote: Bugs, Germs and Genes in the Pathogenesis of NEC
David Hackam, MD, PhD

9:00

Biomarkers and Biology of NEC: Insights to Cause and Prevention
This session is dedicated to Sarah Rose Raab
Promising biomarkers are emerging that may be predictive of impending NEC. Which are most promising and how can these markers be made widely available for use in early detection efforts? A number of clinical tools to support NEC risk are also being developed and will be discussed.
Sheila Gephart, PhD, RN; Katherine Gregory, PhD, RN; Karl G. Sylvester, MD; Akhil Maheshwari, MD

10:15

Animal Models of NEC
Advantages and disadvantages of current animal models will be discussed, along with promising new models.
Steven McElroy, MD; Doug Burrin, PhD; Catherine Hunter, MD

11:30 Lunch (included in tuition) Panel Discussion
Strategies to Support Equitable Access to Human Milk for Premature Infants
How do we ensure all fragile infants at risk of developing necrotizing enterocolitis receive human milk? What are the most effective lactation strategies to support mothers of medically fragile infants? When mother's own milk is unavailable, how do we ensure access to donor milk? How do we ensure diverse communities, and families who are not culturally primed to breastfeed, understand that human milk can be a lifesaving intervention for their fragile infant? Panelists will explore these questions, as well as strategies to overcome barriers that prevent equitable access to human milk for premature infants.
Panelists: Jennifer Canvasser, MSW; Jae Kim, MD, PhD; Pauline Sakamoto, MS, RN, PHN; Aloka Patel, MD; Steve Gwiazdowski, MD

12:45 Treatment Options for NEC
This session is dedicated to Antonio Rosito Robyn
Treatment regimens for established NEC including antibiotic choice and duration, drains vs. laparotomy, and novel interventions will be discussed.
Samir Gadepalli, MD; Shinjiro Hirose, MD

2:00

NEC and Neurodevelopment
What is known about the impact of NEC on the developing brain? Nutritional impact, anesthesia impact, and the role of the gut-brain connections will be discussed.
Camilia Martin, MD; Jing Lu, PhD

3:15 Refreshment break, visit posters and exhibits

3:30 Transfusion Associated NEC
What are areas of controversy? What are implications for practice and research? The state of the science about transfusion associated NEC will be discussed.
Sheila Gephart, PhD, RN; Robert Christensen, MD; Akhil Maheshwari, MD

4:45 Future Directions for the NEC Community
Mark Underwood, MD

5:15 Moving Forward, Together
Jennifer Canvasser, MSW

5:30 Adjourn

Thursday - Continued

5 Low-cost, No-sponsor Multi-center NEC Clinical Trials
This session is dedicated to Grayson Edward Kapferer
As promising novel approaches to the prevention and treatment of NEC become available, it is essential to develop feasible models for conducting multi-center clinical trials. Currently, many centers report single hospital clinical trials and cohort studies of NEC that are limited by small sample size and population homogeneity. Traditional multi-center trials are costly and take years to complete. In this workshop we will address alternate models to complete larger trials for lower cost, including linkage of electronic records, standardized quality improvement projects, and web-based strategies for participation in cluster-randomized clinical trials.
Mark Underwood, MD; Samir Gadepalli, MD

6 Quality Improvement Approach to Reducing NEC
This session will describe a quality improvement approach to reducing necrotizing enterocolitis. Development of driver diagrams, designing a multi-modal NEC reduction bundle, implementing and testing changes in your NICU will be discussed. Common implementation problems and solutions will be explored.
Dan Ellsbury, MD

1:50 Refreshment Break, visit posters and exhibits

2:00 Repeat Workgroups 1-6

2:50 Refreshment Break, visit posters and exhibits

3:00 Human Milk and NEC
This session is dedicated to Micah Donald Canvasser
A growing body of data supports the protective qualities of human milk in the preterm gut. How does human milk decrease the risk of NEC? Should an exclusive human milk diet be the standard of care? How can human milk standards be established and what efforts are being made around the globe?
Jae Kim, MD, PhD; Lars Bode, PhD; Amy Hair, MD

4:15 NEC and Stem Cell Therapy
Future innovative therapies for NEC are on the horizon. This session will investigate the potential of stem cell therapy for NEC. The benefits of different types of stem cells and the mechanisms by which stem cells exert their effects will be discussed.
Gail Besner, MD; Agostina Pierro, MD; Troy Markel, MD

5:30 Workgroup Reports
Workgroup chairs will present a synthesis of each session, with time for discussion and feedback from attendees.

6:30 Poster Session (refreshments provided)
Attendees are encouraged to present their research, quality improvement projects, protocols, or parent engagement strategies at the poster session.

Friday - Continued

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TARGET AUDIENCE
This activity is designed for physicians, scientists, nurse practitioners, physician assistants, nurses, pharmacists, dietitians, lactation consultants, health policy makers, nonprofit leaders and other diverse stakeholders committed to improving the prevention and treatment of necrotizing enterocolitis in fragile infants.

WHY YOU SHOULD ATTEND
The nation’s first conference focused solely on necrotizing enterocolitis will bring together renowned clinicians, scientists and patient-family advocates dedicated to the prevention and improved treatment of this devastating disease. This groundbreaking symposium will provide a robust agenda and dynamic speakers, resulting in a rich learning environment for junior and senior providers and investigators. Attendees will be actively engaged throughout the symposium and encouraged to share their expertise and perspectives to help cultivate specific recommendations and standards. We anticipate one or more white papers related to NEC treatment and prevention to result from this conference.

CALL FOR ABSTRACTS
Attendees are encouraged to submit abstracts for the Symposium’s poster presentations. Learn more about the call for abstracts: http://bit.ly/callforNECabstracts

EDUCATIONAL PURPOSE
Despite significant advances in neonatal care, morbidity and mortality rates associated with necrotizing enterocolitis have not improved significantly in over 30 years. This conference will bring together leaders in the field to improve communication and develop new collaborations, new strategic lines of research, and new protocols to help diagnose, prevent, and treat NEC. This conference will catalyze the development of new research and clinical approaches, along with clear implementation strategies, designed to better prevent and treat this disease.

Conference Goals:
1. Review the current understanding of the pathogenesis, prevention and treatment of NEC.
2. Establish a transdisciplinary collaboration of stakeholders in NEC to accelerate the implementation and standardization of established evidence based practices that can help to reduce the incidence and morbidity of NEC.
3. Explore methods for empowering parents/families and supporting their engagement as part of their baby's care team.
4. Serve as a venue for researchers to create new collaborations and lines of investigation, including shared clinical databases and tissue banking.

EDUCATIONAL OBJECTIVES
At the end of the activity, participants should be able to:
• Identify promising markers of NEC risk
• Recognize characteristics that distinguish NEC from spontaneous intestinal perforation
• Employ novel tools for rapid assessment of the protective qualities of human milk samples
• Interpret the status of probiotic products for NEC prevention
• Describe current animal models of NEC and the advantages and disadvantages of each
• Summarize markers of oxidative stress with clinical promise
• Summarize potential new treatments for NEC
• Articulate promising changes in early care of premature infants to decrease NEC risk
• Identify strategies for engaging parents/family in reducing the risks of NEC

CONFERENCE REGISTRATION
Please register early – space is limited.
Tuition is $375 for physicians and $275 for all others. Confirmation of registration will be sent within two weeks after receipt of registration form. The fees will increase after March 16, 2017.
Tuition includes welcome reception, continental breakfasts, refreshment breaks, lunches, electronic syllabus, and an online certificate of attendance. Tuition may be paid by check, American Express, Discover, MasterCard or VISA. Cash is not accepted. The Office of Continuing Medical Education reserves the right to cancel this conference. In such a case, a full refund of registration fees will be given.
Registration forms received without payment will not be processed until payment is received, and payment must follow within 10 days. Early discount rates are honored if payment is received by the date noted on the registration form. After that date, the late fee is applied.
Cancellation and Refund Policy:
A refund of tuition, less $75 administrative fee, will be allowed if requested in writing by March 16, 2017. No refunds will be provided after this date.

ELECTRONIC EVALUATION AND CREDIT
The link to your electronic syllabus, evaluation and certificate of credit will be available for 30 days after the last day of the conference. Once you have completed the online evaluation, your certificate will be available to print. After 30 days this link will expire and no longer be available online. You must contact the Office of CME to receive your certificate. A $15 administrative fee will be applied.

SYLLABUS
The electronic syllabus will be available to pre-registered attendees online prior to the conference for downloading and printing. A flash drive containing the syllabus will be distributed at the conference.
LOCATION
UC Davis Conference Center
550 Alumni Lane
Davis, CA 95616
http://bit.ly/1NaLPP7

The UC Davis Conference Center is adjacent to the Alumni Center and across
the quad from the Robert Mondavi Center for the Arts.

If you have any special needs due to a disability as specified in the Americans
with Disabilities Act, please call the Office of Continuing Medical Education
at (916) 734-5390 so we may make the necessary accommodations for you.

PARKING
Park in the South Entry Parking Structure, Lot VP 1 or Lot VP 2. Parking is $9.

HOTEL ACCOMMODATIONS
Hyatt Place UC Davis
550 Alumni Lane
Davis, CA 95616

A block of rooms is being held for participants at the Hyatt Place UC
Davis at a rate of $165 single or double occupancy plus hotel
and sales tax. After March 6, 2017, reservations will be on a space
and rate available basis. Reservations should be made directly with
the hotel.

ACCREDITATION
This activity has been planned and implemented in
accordance with the accreditation requirements and policies
of the Accreditation Council for Continuing Medical Education
(ACCME) through the joint providership of the University of
California, Davis, Health System and the NEC Society. The University of
California, Davis, Health System is accredited by the ACCME to provide
continuing medical education for physicians.

CREDIT DESIGNATION
PHYSICIAN CREDIT: The University of California, Davis, Health System
designates this live activity for a maximum of 21.75 AMA PRA Category 1
Credits™ Physicians should claim only the credit commensurate with the
extent of their participation in the activity.

AMA PRA Category 1 Credits™ acceptable for other health care
providers
NURSE: 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 re-licensure,
the California Board of Registered Nursing accepts AMA PRA Category 1
Credits™ (report a maximum of 21.75 hours of credit and fill in “CME
Category 1” for the provider number).

PHARMACIST: You may petition the California State Board of Pharmacy
for CE credit for this symposium. Please see http://www.pharmacy.ca.gov/
licensees/personal/ce.shtml for details.

PHYSICIAN ASSISTANT: The National Commission on Certification of
Physician Assistants (NCCPA) states that AMA PRA Category 1 Credits™
are acceptable for continuing medical education requirements for
recertification.

AIR TRAVEL TO SACRAMENTO (SMF)
United Airlines: To obtain Groups and Meetings discount prices go to http://
www.united.com and enter Offer Code: ZX6T636361.

GROUND TRANSPORTATION
Hertz Car Rental: To obtain discount prices go to http://www.hertz.com and
enter Convention Number 04H70008 for discounted rates.

FOR FURTHER INFORMATION
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Office of Continuing Medical Education
4610 X Street, Suite 2301
Sacramento, CA 95817

(866) CME4EDU (263-4338)
(916) 734-5390 Phone
(916) 734-0742 Fax
http://cme.ucdavis.edu

BROCHURE ART CREDIT
Brochure images courtesy of Accreditation Council for Continuing Medical
### Registration Form

**NECROTIZING ENTEROCOLITIS SYMPOSIUM**  
A Transdisciplinary Approach to Improved Outcome  
**APRIL 5 – 7, 2017**

#### First Name M.I. Last Name  
- MD  
- DO  
- PharmD  
- PA  
- NP  
- RN  
- Other: ___________________________  
- Lic #: ___________________________

#### Institution/Employer (as you would like it to appear on your badge)  
Profession/Occupation: ___________________________

#### Address (where you would like your receipt mailed)  
City: ___________________________  
State: ___________________________  
Zip Code: ___________________________

### Workgroup Registration

#### Digital Syllabus

- Electronic syllabus: To pre-registered attendees online prior to the meeting for downloading and printing. A USB flash drive will be distributed at the conference.

#### Registration Fees

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**Workshop Registration** (Circle 1st and 2nd choice in each time slot)

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#### Physician Information

- Please indicate your primary medical specialty:  
  - FP  
  - GP  
  - IM  
  - GE  
  - Other (specify): ___________________________

- Social Security Number (last 4 digits required for transcript purposes)
  - ________ - ________ - ________ - ________

E-mail for link to electronic syllabus. UC Davis CME will not use your email for any purpose other than corresponding with you.

#### For Your Protection

- Do not fax or email your registration form with credit card number. Please mail your registration or contact the Registrar at (916) 734-5390 for assistance if you would like to use a credit card.

- Please note special dietary/food allergy requirements:

- If you need disability accommodations at the meeting, please let us know by **March 16, 2017** and our representative will contact you.

- For Office Use Only:  
  - NECRO17  
  - 6011  
  - FAX: (916) 734-0742

- Please use ONE of these methods to register:  
  - MAIL APPLICATION AND PAYMENT TO: Office of Continuing Medical Education  
    c/o UC Davis Cashier’s Office  
    PO Box 989062, West Sacramento, CA 95798-9062
  - TELEPHONE: (916) 734-5390/ Toll Free: 866-CME4EDU
  - FAX: (916) 734-0742

- Authorized Signature (name on card)
  
- Please use ONE of these methods to register: (Do not mail if previously faxed or telephoned)

- Account Number
  
- Expiration Date

- Social Security Number (last 4 digits required for transcript purposes)
  - ________ - ________ - ________ - ________

- Check enclosed payable to: UC Regents  
  - AMEX  
  - Discover  
  - MasterCard  
  - VISA

- eMktg
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• Prevention and early detection of NEC
• Human milk and NEC
• Patient-family centered care in NEC prevention
• Animal models of NEC
• Probiotics and NEC
• NEC registry and biorepository
• Treatment and neurodevelopmental outcome

This activity is self-supporting and receives no state funding.