Subspecialty Training in Infectious Diseases at Emory

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Electron micrograph of Neisseria meningitidis

Contents
I. Letter from Drs. Stephens, Armstrong, and Leonard 2
II. Atlanta, Emory University and the Department of Medicine 3
III. History of the Division of Infectious Diseases and Subspecialty Training Program in Infectious Diseases 3
IV. Unique Aspects of the Emory Infectious Diseases Program and Collaborative Ties 4
V. Structure of Fellowship
   A. Inpatient Care Experience
   B. Ambulatory Care Experience
   C. Educational Programs
   D. Research 11
VI. Opportunities for Research Training at CDC 17
VII. Accreditation 18
VIII. Application Procedure 18
IX. Faculty Interest Table 19

APPENDICES
A. Full-time Faculty 23
B. Faculty Research and Publications 25
C. Clinical (Volunteer) Faculty 100
D. Associated and Adjunct Faculty 101
E. Current Trainees 101
F. Graduates 103
We welcome your interest in our Emory Infectious Diseases Fellowship Training Program. Our Program has an outstanding foundation – a dedicated and talented faculty, a vibrant and progressive academic community, multi-disciplinary research opportunities at Emory, CDC, and affiliated centers all with a rich clinical environment and a tradition of excellence in patient care.

The ID Fellows are the focal point of our educational activities. The Fellows are instrumental in running the clinical services and are important contributors to our research efforts. Indeed, the existence of a vital fellowship training program is one of the most important missions of our Division and the source of much pride.

This brochure provides background information about Emory University, an overview of the Emory ID Fellowship Training Program, and summarizes the most recent academic activities of our ID faculty members. Our program is rigorous and challenging and at the same time nurturing and supportive. It is sufficiently large to provide diverse opportunities while being personal and friendly. We are proud of our accomplishments, our university, and our city. We invite you to learn about the Emory ID Fellowship Training Program and perhaps become a part of our continuing success!

Sincerely,

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Comment [WSA1]: Need to update
II. ATLANTA, EMORY UNIVERSITY AND THE DEPARTMENT OF MEDICINE

Metropolitan Atlanta, home to over 4.5 million people, is the commercial, industrial and financial leader of the Southeast and was the host city for the 1996 Olympic Games. Emory University was founded at Oxford, Georgia, in 1836 and moved to Atlanta in 1919. The campus, located fifteen minutes from downtown Atlanta, covers 550 acres of forested hills and is home to 10,000 students. The national headquarters for the Centers for Disease Control and Prevention (CDC) is adjacent to the Emory University campus.

Emory University School of Medicine recently celebrated its 150th anniversary. The School of Medicine founding dates back to 1854; and became part of Emory University in 1915 following a series of mergers by forerunner Atlanta medical schools. The Emory University School of Medicine is the cornerstone of Emory’s Robert W. Woodruff Health Sciences Center. The clinics and hospitals of this center, with 2,975 inpatient beds and 2.2 million annual patient visits, create an exceptionally rich environment for 1,147 residents and fellows, 455 medical students and 1,804 faculty to engage in teaching, patient care and research activities.

The Chair of the Emory Department of Medicine is R. Wayne Alexander, MD, PhD. The Department of Medicine is nationally recognized for excellence in teaching, basic and clinical research, and the delivery of patient care. There are 520 full-time faculty, 206 house officers and 147 fellows in the Department of Medicine. The Emory internal medicine program and the training program in infectious diseases are centered in four hospital settings which provide a large and varied patient population: city-county (Grady Memorial Hospital), tertiary referrals (Emory University Hospital), veterans (Atlanta VA Medical Center) and community (Emory Crawford Long Hospital).

III. HISTORY OF THE DIVISION OF INFECTIOUS DISEASES AND SUBSPECIALTY TRAINING PROGRAM IN INFECTIOUS DISEASES

Dr. Paul Beeson, who later became Chair of Medicine at Emory and Yale, founded the Infectious Disease Program at Emory. Dr. Beeson was recruited by Dr. Eugene Stead, Chairman of the Department of Medicine in 1942. At that time, Dr. Beeson was the first and only infectious disease physician in the southeastern United States. He studied and trained at McGill University (M.D.), the University of Pennsylvania, the Rockefeller Institute Hospital in New York, and the Peter Bent Brigham Hospital in Boston. Early in his career his research focused on the treatment of pneumococcal pneumonia. In 1942, Dr. Beeson moved to Atlanta to join the Emory faculty and directed the bacteriology laboratory at Grady Memorial Hospital. While at Emory he wrote the sentinel paper on transfusion-related hepatitis, and carried out research on sepsis, endotoxin-induced fever, and endocarditis. In 1946 he became Chair of Medicine at Emory, a post he held until 1952.

Dr. Charles A. LeMaistre initiated the Infectious Diseases clinical program at Emory University in 1954. In 1958, Dr. LeMaistre became the Chairman of the Department of
Preventive Medicine and Community Health, and Dr. Thomas F. Sellers, Jr., assumed responsibility for the Infectious Diseases program.

Subsequent directors of the Division of Infectious Diseases have been W. Edmund Farrar, MD; Jonas A. Shulman, MD; W. Lee Hand, MD; and David S. Stephens, MD. Dr. Stephens, the current Director of the Division of Infectious Diseases, was appointed to this post in 1992. Dr. Stephens also currently serves as Vice President for Research in the Robert W. Woodruff Health Sciences Center (WHSC) of Emory University.

During the past decade under the leadership of Dr. Stephens, the Emory ID Division has experienced unparalleled growth and development. There are currently fifty-four faculty members in the Emory ID Division who, between Grady, VA, Emory and Crawford Long campuses have garnered in excess of $20 million in research funding per year (the most of any Division in the Department of Medicine).

The formal subspecialty training program in Infectious Diseases started in the late-1960s. To date, 119 physicians have completed Infectious Diseases fellowship training in the program. Over the past decade, ~80% of the fellows completing the Emory ID fellowship training program have pursued careers in academic medicine or public health and ~20% have gone into private practice. More than a third of these trainees have been women (and currently more than half of the ID fellows are women); 14% are members of an underrepresented minority group.

IV. UNIQUE ASPECTS OF THE EMORY INFECTIOUS DISEASES PROGRAM AND COLLABORATIVE TIES

The broad range of available clinical and research experiences, a diverse and accomplished faculty, and the unique resources in the Emory and Atlanta community create an unparalleled opportunity for training in infectious diseases research, teaching, and patient care. Members of the Division have developed close collaborative ties with the following Schools and Centers at Emory University and other institutions in Atlanta:

**Centers for Disease Control and Prevention (CDC)** - Many division members have collaborative relationships with the CDC, leading to exciting basic and translational, clinical and epidemiologic research projects. In addition, more than 50 CDC physicians have clinical faculty appointments in the Division and participate in divisional clinical and teaching activities.

**Georgia Department of Human Resources (DHR)/Division of Public Health Epidemiology and Prevention Branch** - This state agency is responsible for public health aspects of infectious disease problems in Georgia and Atlanta. The Emory Division of Infectious Diseases and the Epidemiology and Prevention Branch of DHR have developed several research ties including area-wide population-based surveillance for agents of emerging infectious diseases and food-borne illness and projects related to control of tuberculosis in hospitals, correctional facilities and in the community, as well as tuberculosis-related epidemiologic studies.

IV.
The Carter Center - The Carter Center has a number of infectious disease-related initiatives both on a local and international level. Involvement of the Division in the activities of the Carter Center enhances our research capabilities and national exposure.

Rollins School of Public Health (RSPH) of Emory University - The Division of Infectious Diseases plays an active role at the Rollins School of Public Health (RSPH) of Emory University. The Dean of the RSPH is James Curran, MD, MPH, former Director of the HIV/AIDS Program at CDC. Dr. Curran serves as the PI/Program Director for the Emory Center for AIDS Research (CFAR). Emory ID Fellows may combine clinical training in Infectious Diseases with the MPH degree through the RSPH or with the MSCR (Masters of Science in Clinical Research) degree for those interested in a career in clinical investigation as described below.

Global Health Research Training Activities -- In September of 2006 Emory University established a Global Health Institute (GHI) under the leadership of Dr. Jeffrey Koplan, former Director of the CDC and now Vice-President for Global Health at Emory. The GHI has provided opportunities for fellows to be involved in international research projects. The Emory Division of Infectious Diseases is the home of two NIH/Fogarty funded international research training programs. They are the Emory-Georgia TB Research Training Program (TB-RTP) and the Emory AIDS International Training and Research Program (AITRP). These NIH-funded training grants support international researchers to come to Emory for further training. The Emory AITRP and TB-RTP fellows participate in divisional activities which provide an opportunity for interaction between ID Fellows and international scholars. In addition, the Center for Global Safe Water at the Rollins School of Public Health, led by Division of Infectious Diseases faculty member Dr. James M. Hughes provides an opportunity for fellows to participate in clinical and epidemiologic studies of water related diseases.

Global Health Institute of Emory University. The mission of the recently established Emory Global Health Institute is to advance Emory University’s efforts to improve health around the world. The Global Health Institute, directed by Dr. Jeffrey Koplan, former Director of CDC, is a university-wide initiative that supports Emory faculty, students, and alumni in their work to find solutions to critical global health problems. Emory has demonstrated its commitment to Global Health through its $55 million investment in the institute.

Emory Masters of Science in Clinical Research (MSCR) – As part of the Emory Division of Infectious Diseases Fellowship Training Program, Emory ID fellows have the opportunity to receive didactic and mentored clinical and translational research training through the MSCR program (www.actsi.org/retcd and www.sph.emory.edu/mscr). The specific aim and overall goal of the Emory MSCR program is to provide an outstanding postgraduate education program for clinical investigators so that upon completion of this program and receipt of the MSCR degree, they can more effectively conduct high-quality clinical and translational research and compete successfully for research funding. The MSCR program is now housed in the Atlanta Clinical and Translational Science Institute.
[ACTSI] (NIH supported Emory CTSA). Dr. David Stephens, M.D. (Division Director, Infectious Diseases) serves as PI of the ACTSI and Dr. Henry Blumberg (Program Director, Division of Infectious Diseases) serves as the Program Director of the ACTSI Research Education, Training and Career Development (RETCD) program which includes the MSCR program and the KL2-Mentored Clinical Research Scholars Program. The MSCR program is designed to help prepare participants for careers as clinical research scientists. The program includes formal course work (analytic sciences including statistical reasoning, decision analysis, probability theory, analytical epidemiology, biostatistics and bioinformatics; thorough understanding of the principles of evidence-based medicine, bioethics, clinical trials design, regulations involving human subjects, scientific and grant writing, technology transfer, outcomes research, and the responsible conduct of research) and a mentored thesis leading to the MSCR degree from the Graduate School of Emory University.

Basic Science Departments of Emory University School of Medicine - Members of the Division of Infectious Diseases have strong research and teaching ties with the Department of Microbiology and Immunology, headed by Dr. Charles Moran well as the Emory Vaccine Center headed by Dr. Rafi Ahmed. These ties include involvement in graduate student training and teaching, and membership in graduate programs in Immunology and Molecular Pathogenesis or Microbiology and Molecular Genetics. Graduate level courses are available for our fellows in areas such as Immunology and Prokaryotic Genetics.

Emory Vaccine Center – The Emory Vaccine Center represents one of the largest academic vaccine centers in the world, and is renowned for its expertise in cellular immunity and immune memory. This expertise leads to the creation of new technologies for the prevention of emerging infectious diseases. Established in 1996 with support from Emory University and the Georgia Research Alliance, the Emory Vaccine Center has 21 faculty members who study HIV/AIDS, tuberculosis, malaria, and other global infectious disease threats.

The Hope Clinic – The Hope Clinic of the Emory Vaccine Center is the key vaccine clinical trial site of the Emory University School of Medicine. The Hope Clinic offers an innovative, community based, and scientifically grounded clinical trials program to address the need for safe and effective vaccines to prevent major global infectious diseases. The clinic is recognized for its excellent, innovative prevention studies, its high impact public health agenda, and its active strategic partnerships and service to the community. The Hope Clinic has been funded as a NIH/National Institute of Allergy and Infectious Diseases (NIAID) Vaccine and Treatment Evaluation Unit (VTEU) and an HIV Vaccine Trials Unit (HVTU).

V. STRUCTURE OF FELLOWSHIP

There are three tracks available to ID Fellows in the Emory program. This includes a 2-year clinical track, a three-year clinical investigator (or epidemiologic) track, and a 3-year
basic investigator track. A two-year program provides training and experience to acquire board eligibility in Infectious Diseases. Most fellows in our program complete a third year and on occasion, an optional fourth year to provide for additional training in clinical investigation or basic science research in preparation for an academic career. The ID fellowship includes 12 months of clinical rotations during a 2 year program and 13 to 15 months during 3 year or 4 year fellowships. The remainder of the fellowship is devoted to research and research training activities. Research training is an essential component of the Emory ID Training Program as discussed below in Section D.

As noted, there are outstanding opportunities for both clinical and research training. In addition to hospital based consult services, fellows also have rotations and gain experience in transplant infectious disease, clinical microbiology, outpatient infectious diseases, pediatric infectious diseases, infection control and healthcare epidemiology, and infectious disease pharmacology. An outpatient continuity clinic and rotations at specialty clinics (e.g., STD, TB, Travel, Pediatric Immunology, and Transplant ID) are part of the training program.

A. Inpatient Care Experience

The clinical infectious diseases training program utilizes four Emory-affiliated teaching hospitals which provide opportunities to care for patients with a variety of infectious diseases. The experiences at these hospitals are varied and complement each other. ID fellows completing the Emory program pride themselves in “having seen it all”. Year 1 of the Emory ID fellowship is devoted to clinical training.

The ID consult team consists of the ID fellow and an ID attending. The number of medical residents assigned to the team varies by hospital due to differences in consult volume, but generally teams include one or two housestaff. Senior medical students may also do rotations on the infectious diseases consult service. Clinical pharmacists (PharmD) either round with the ID consult team or are readily available at each of the four Emory-affiliated hospitals.

**Grady Memorial Hospital** - This large public urban hospital (~ 1000 beds) located in downtown Atlanta serves as the source of care for a population of more than half a million and receives 2,000 patient visits per day. Common infectious disease problems encountered include tuberculosis, sexually transmitted infections, HIV/AIDS, complications of injection drug use, orthopedic and trauma-related infections, diabetic-related infections, pulmonary infections and tropical diseases (because of an increasing number patients from Latin America, Southeast Asia and sub-Saharan Africa). Specialized HIV care is provided on a separate ward, thus the hospital ID consult service is not dominated by HIV care, but intensive experience with inpatient HIV-related problems is acquired during a separate rotation. The general infectious diseases consult team sees approximately 75-100 new consults per month and follows 10-20 patients at any given time. On the HIV ward, the fellow assists the ID Attending with supervision of a house staff team which cares for up to 35 inpatients. Grady Memorial Hospital is also home to a NIH funded General Clinical Research Center (GCRC), one of the few public hospitals in the nation to house such a center.
VA Medical Center (Atlanta) – This 173 bed hospital is a primary and tertiary care facility (40-50 consults per month 10-20 patients at any given time) with an adjacent 100 bed nursing home unit.

Emory University Hospital – Emory Hospital, a tertiary care facility with 583 total beds, deals with specialized and complicated problems and procedures. Areas of expertise and interest include heart failure, primary pulmonary hypertension, coronary artery bypass surgery, interventional cardiology, neurosurgical procedures, bone marrow transplantation, and solid organ (kidney, kidney-pancreas, liver, heart, and lung) transplantation. At present, 150 kidney, 10 kidney-pancreas, 25 heart, 80 liver and 30 lung transplants are performed each year. Fellows rotate on the general ID consult service and also on a separate ID Transplant Consult service at Emory University Hospital. All fellows also spend one month on the clinical microbiology rotation at Emory Hospital during their first year of training. Approximately 90-100 consults per month are seen on the General ID Consult service and 50 consults per month on the ID Transplant Consult service.

Emory Crawford Long Hospital – Located in Midtown Atlanta, this university-owned community teaching hospital with 500 beds is staffed by both private physicians and full-time faculty of Emory University. Crawford Long Hospital provides primary and tertiary care and has busy ID consult service (90-100 consults per month, 15-30 patients at any given time). The hospital complex has recently undergone a $270 million renovation.

B. Ambulatory Care Experience

Throughout the fellowship, each trainee maintains a continuity outpatient clinic that meets one-half day per week. Fellows are assigned a continuity clinic at one of three sites (Grady Infectious Diseases/Ponce Center, the Emory Healthcare Infectious Diseases Clinic, or the VAMC Infectious Diseases Clinic). Although these clinics differ somewhat in their organization and in the patient population served, they all offer excellent opportunities to see outpatient infectious diseases referrals (HIV-infected and HIV-uninfected patients) and to follow a cohort of patients with HIV infection. A faculty member is present to provide supervision at each setting.

Outpatient clinics and facilities utilized in the program include:

Continuity Clinic

- **The Ponce de Leon Center of Grady** (Directed by Dr. Jeffrey Lennox) - The Infectious Diseases Program (IDP) at the Ponce de Leon Center provides primary care for over 4,500 HIV-infected adults and children and is a major site of clinical research in HIV/AIDS. Drs. Aikens, Anderson, Armstrong, Broyles, del Rio, DiazGranados, Gunthel, Lennox, Leonard, Mulligan, Palmore, Ofotokun, and Nguyen provide the care and supervision at this center which is composed of six interrelated outpatient clinics and is one of the finest outpatient facilities for HIV/AIDS care in the country. General infectious disease outpatient consultations are also provided at this site.
• **The Emory Healthcare Infectious Diseases Clinic** (at Emory Crawford Long Hospital; Directed by Dr. Molly Eaton) - Drs. Franco, Jacob, Kuhar, Lyon, Osborn, Ribner, Rouphael, Steinberg, Talati, and Workowski provide primary care for HIV infected persons (including the majority of HIV-infected hemophiliac patients in Atlanta) and infectious disease consultation services for a broad referral area in the southeastern United States. Approximately 1,000 HIV-infected patients are followed at this clinic.

• **The Atlanta VA Medical Center (VAMC) Infectious Diseases Clinic** This clinic is directed by Dr. David Rimland, Chief of Infectious Diseases at the Atlanta VAMC. Drs. Rimland, Moanna and others including several CDC colleagues provide care to approximately 1,000 HIV-infected veterans.

**Specialty Clinics** – Emory ID fellows rotate through all of the following subspecialty clinics.

• **Sexually Transmitted Disease (STD) Clinic** – Fellows rotate through the Fulton County STD clinic which is located directly across the street from Grady Memorial Hospital. This urban STD clinic provides the opportunity to see a wide variety of outpatient sexually transmitted infections.

• **Travel Well Clinic** - (Directed by Drs. Carlos Franco and Phyllis Kozarsky). Travel Well has approximately 3,000 visits per year, including pre-travel visits for advice, vaccination etc., and post travel evaluations for illnesses acquired during travel. The clinic also sees an increasing number of immigrants and refugees. The Travel Well Clinic is located at Emory Crawford Long Hospital adjacent to the Emory Healthcare Infectious Diseases Clinic. Because of the large number of international corporations with headquarters in Atlanta (e.g., Coca-Cola, UPS, Home Depot, Delta Airlines, and CNN), the large number of missionary organizations based in the Southeast, and the large numbers of persons traveling with the CDC, Travel Well provides services to persons who have visited a wide variety of locations.

• **Pediatric Immunology Clinic** – This clinic directed by Lisa Kobrynski, M.D. in the Department of Pediatrics provides fellows with the opportunity to see patients with unusual non-HIV immunodeficiencies.

• **Tuberculosis Clinic at Fulton County Health Department** (Division activities directed by Dr. Susan Ray) -The Emory Division of Infectious Diseases provides care for patients with tuberculosis in an arrangement with the Fulton County Health Department which is located directly across the street from Grady Memorial Hospital. Fellows rotate through the TB Clinic at Fulton County and have the opportunity to also attend the HIV/TB clinics at the DeKalb County Health Department.

• **Transplant ID Clinic** – (Directed by Dr. Marshall Lyon). Fellows rotate through the transplant ID clinic, based at Crawford Long Hospital, which provides outpatient follow-up to those solid-organ and marrow transplant patients with infectious
C. Educational Programs

A wide array of conferences and educational programs are available in Atlanta including at Emory and CDC. The Emory Division of Infectious Diseases sponsors several conferences; these include:

- **Case of the Week** - In this weekly clinical conference, fellows present two clinical cases followed by a review of medical literature pertaining to specific questions raised by the case. A third case is presented each week by a faculty member.

- **Infectious Diseases Seminar** - This research conference is held on a weekly basis. Members of the Emory ID Division, other faculty at Emory, or visitors from the CDC or other institutions present research topics related to infectious diseases, microbiology, or immunology. Each ID fellow presents at least once at Seminar during the fellowship.

- **Journal Club** - Journal club meets monthly at the home of a faculty member (drinks and dinner provided by the faculty member!). Fellows and faculty discuss clinical and basic research articles in detail. The content of the articles as well as aspects of interpretation of medical literature is emphasized.

- **Citywide Infectious Diseases Case Conference** - This dinner conference is held at restaurants around Atlanta and replaces the regular case of the week conference approximately once every 2 months. There are a variety of interesting presentations including cases presented by infectious diseases practitioners in the community and interesting reports or outbreaks presented by staff from the CDC. ID fellows also have the opportunity to present cases at this conference. This conference facilitates interaction with the outstanding clinical community in Atlanta as well as infectious diseases physicians at CDC.

- **Basic Concepts of Infectious Diseases** (“Didactic”) - This weekly lecture series (directed by Drs. Molly Eaton and Melissa Osborn) serves to provide fellows with information that might not be encountered during clinical rotations. The course includes a general review of basic science methods, mechanisms of action and resistance of antimicrobial agents, infectious disease syndromes, and infectious agents. The course is on a two year schedule so that fellows entering the program at different times receive a didactic review of important topics covered in the course curriculum during their fellowship training.

- **Advanced Management of HIV/AIDS** - This weekly lecture series directed by Dr. Wendy Armstrong is primarily targeted to second and third year fellows. The course runs from September to June and provides a full HIV curriculum including basic science and clinical topics in a small group, often case-based and highly interactive format.
A wide variety of conferences and presentations are also available outside the Division. Weekly research seminars are sponsored by the Graduate Departments of Microbiology and Immunology and monthly seminars by the Emory Vaccine Center. In addition, weekly epidemiology seminars, monthly Infectious Diseases Grand Rounds, and frequent special presentations are held at the CDC. Conferences and seminars are also sponsored by the Department of Medicine and by each division within the department and at the Rollins School of Public Health of Emory University. Of particular relevance to our Division are the Center for AIDS Research (CFAR)-sponsored events including the CFAR AIDS Soirée and the Vaccine Dinner Club meetings.

Additional conferences include the monthly Housestaff ID conference and Neuro-ID conference and the bi-monthly Pulmonary ID conference. The Housestaff conference is held at the end of each month and rotates between each hospital. A member, from each consult team, usually the resident, presents an instructive case illustrating basic principles of infectious diseases. The Neuro-ID conference is held at Grady Memorial Hospital on a monthly basis. This is an interdisciplinary conference. Attendees include the Grady ID consult team, the SIS team, the Neurology consult team, a neuroradiologist and the neurosurgery residents and faculty at Grady. Selected interesting cases are reviewed with a discussion of the diagnostic and management challenges. The Pulmonary ID conference is held at Grady Memorial Hospital the second and fourth Thursday of each month. It is a joint conference where members of the Grady ID consult team, SIS team, Pulmonary consult service and MICU team, often with representatives from pathology as well, discuss interesting current cases.

Support is provided for trainees to attend at least two scientific meetings (typically IDSA or ICAAC and another conference of their choice) during their fellowship. Attendance at additional meetings is encouraged and supported financially when feasible, especially for those who are making presentations.

D. Research

Outstanding opportunities are available for research—basic, translational, clinical, or epidemiologic—through the Emory University School of Medicine Division of Infectious Diseases. The Emory Division of Infectious Diseases had more than $23 million in research funding in fiscal year 2007, more than any other division in the Department of Medicine. Additional outstanding opportunities for research are also available through collaborators at the Emory Vaccine Center, the Emory Department of Microbiology and Immunology, the Emory Rollins School of Public Health, and the CDC. During the past year the Emory Division of Infectious Diseases faculty and fellows have recorded approximately 247 publications - 153 in peer-reviewed journals, 31 book chapters, 3 books; in addition there were 70 abstracts presented at scientific meetings.

All trainees participate in a major clinical, epidemiologic, and/or laboratory research project during their fellowship. After beginning the program, all fellows will identify a faculty mentor under whose guidance they will carry out their research project. The fellow-faculty mentor relationship is crucial to a successful research program. The
Emory ID program provides an environment suited to developing expertise in many disciplines within infectious diseases. While some trainees designate a specific area of interest prior to the start of the fellowship, this is not required. Clinical rotations are scheduled in blocks (i.e., 1st year of training) so that extended periods are available for concentrated research efforts (i.e., 2nd and 3rd years of training). Each November, all first-year fellows participate in a research retreat designed to assist in their planning of the upcoming research year. Division leaders present their experiences in a variety of general research areas including: basic science, clinical and translational research, healthcare epidemiology, clinician-educator, and global health. Additional topics covered during the retreat are selection of a research mentor, publication expectations, the MSCR program, and an introduction to training/career development grants.

To take advantage of the broad range of possible experiences, some fellows participate in 1 to 2 smaller research efforts in addition to their primary project which may be basic laboratory research or clinical (or epidemiologic) research. Fellows have generated one or more publications as a result of their research activities. When fellows choose to conduct research under the guidance of an investigator from CDC or the Emory graduate programs, a faculty member from the Division of Infectious Diseases is assigned as a co-mentor to assist with project choices and progress evaluation.

Two research tracks are available for trainees – a **clinical investigator track** (for fellows interested in clinical, translational, or epidemiologic research) and a **basic investigator track**. A third year and in some cases subsequent years of training are designed for individuals with a goal of a career in academic infectious diseases emphasizing clinical, translational, or basic investigation. The trainee spends these years largely in research activities under the supervision of the faculty mentor. Funding support is provided through a variety of sources (e.g., NIH training grants, CDC funded research, Divisional funding, competitive fellowships, and VA Career Development Program support).

Understanding the basic science underlying infectious diseases and related disciplines is encouraged throughout the fellowship. This is accomplished through trainee presentations at research seminars, review at Journal Club of basic research articles and attendance at basic research seminars in the Division of Infectious Diseases, the Department of Medicine, the Department of Microbiology and Immunology and at the CDC.

**RESEARCH OPPORTUNITIES**

a. **BASIC AND TRANSLATIONAL SCIENTIFIC RESEARCH** - Basic scientific research within the Division focuses on pathogenesis of infectious diseases such as bacterial meningitis (Drs. Stephens, Farley, Satola, Tzeng, Weiss and Shafer [adjunct faculty]) as well as basic and translational research in HIV, immunology, vaccine development and/or virology (Drs. Galinksy, Garber, Blackwell, Moreno, Grakoui and Radziewicz and Drs. Eric Hunter, Rafi Ahmed and Harriet Robinson [Vaccine Center Investigators]). Major areas of investigation of bacterial pathogens include analysis of mechanisms of attachment and invasion of *Neisseria* and *Haemophilus* (including molecular investigation of synthesis and function of pili,
capsules and lipooligosaccharides, roll of toll receptors), studies of the molecular mechanisms of antibiotic resistance (Drs. Stephens, McGowan), research into the role of transposable elements and repetitive nucleotide sequences in microbial pathogenesis, and agents associated with bioterrorism (Dr. Stephens). The pathogenesis group works closely with the other investigators in the Emory Department of Microbiology and Immunology and investigators at the CDC who focus on microbial pathogenesis. The Division participates in graduate programs and research in microbiology and molecular genetics, immunology and molecular pathogenesis, and population biology, ecology, and evolution. Additional opportunities are available for basic research in toxin mediated infections, intracellular pathogens, influenza, hemorrhagic fever viruses, zoonotic pathogens, parasites and fungi.

The Emory Vaccine Center has been established at Emory University at the Yerkes Primate Research Center. Dr. Rafi Ahmed serves at the Director of the Vaccine Center. The EVC currently has 24 faculty and 71 postdoctoral fellows who have attracted more than $24 million in sponsored research funding. Primary program areas in basic science and translational research currently include HIV/AIDS, tuberculosis, malaria, Hepatitis C virus (HCV), cytomegalovirus, gamma-herpes viruses, influenza, and DNA and protein-conjugate vaccines. In addition, as discussed above, the Emory Vaccine Center has a unit (The Hope Clinic directed by Emory ID faculty member Dr. Mark Mulligan) to conduct clinical research, vaccine trials, and critical research on vaccine policies. The Emory Vaccine Center provides many opportunities for basic and translational investigation of HIV-related immunology, vaccine development and virology; these are a major focus of investigation that involves our faculty (Drs. Garber, Grakoui, Radziewicz, Blackwell, and others). Malaria research is also a major focus covering molecular, cellular and immunophysiopathological aspects of this disease, as well as malaria vaccine development and testing (Drs. Galinski and Moreno). Investigations of naturally acquired immune responses in malaria endemic regions are also a priority. Further vaccine related research addresses T-cell immunologic responses and antigen processing (Drs. Ahmed, Galinski, and Robinson) as well as homeostasis of T-cells. A number of additional opportunities for basic scientific research are available in the Graduate Divisions of Microbiology and Immunology and through CDC. HIV translational research is also a major focus of the ID Division and Emory Vaccine Center investigators (Drs. Hunter, Radziewicz, Blackwell).

Clinical and Diagnostic Microbiology - Emory University Hospital and Grady Memorial Hospital have outstanding resources in diagnostic and clinical microbiology. Dr. Angela Caliendo Director of the Emory Healthcare Laboratories is a nationally known leader in clinical microbiology and molecular diagnostics. Areas of focus have included development and assessment of diagnostic tools based on nucleic acid detection, optimization of laboratory procedures for diagnosis of mycobacterial infections, and assessment of the accuracy of automated systems for detection of antimicrobial resistance.

b. CLINICAL RESEARCH - Major areas of focus for clinical research include HIV/AIDS, sexually transmitted infections, tuberculosis, vaccine research, healthcare
epidemiology, emerging infectious diseases, global health, and bioterrorism. Clinical research training opportunities are enhanced by the presence of a Clinical Interaction Sites (previously called General Clinical Research Centers (GCRC) at the Emory-affiliated hospitals. In addition, opportunities for clinical and translational research training are enhanced by the presence of the NIH funded CTSA award (Atlanta Clinical and Translational Science Institute [ACTSI] which was awarded to Emory University in collaboration with Morehouse School of Medicine and the Georgia Institute of Technology. A major component of the ACTSI is the Research Education, Training and Career Development program which includes the Master of Science in Clinical Research (MSCR) program described above.

A number of clinical and translational research studies are ongoing at the Infectious Diseases Clinics on the campuses of Grady, Emory, Crawford Long and at the VA in addition to hospital-based clinical research activities.

- The Grady Infectious Diseases Program/Ponce de Leon Center follows more than 5,000 HIV-infected patients and is the site of the NIH-funded Emory HIV/AIDS Clinical Trial Unit (EHCTU, directed by Dr. Lennox). Treatment trials for the AIDS Clinical Trials Group at the Ponce center are directed by Dr. Del Rio, who also oversees the HIV Prevention Trials Network (HPTN) studies at Ponce and at the Hope Clinic. In addition, investigator initiated or pharmaceutical research at the facility is currently addressing new antiretroviral agents, new combinations of antiretrovirals, adherence issues, pharmacokinetics, and therapy for opportunistic infections. The EHCTU also performs HIV Vaccine Trials Network studies at the Hope Clinic, under the direction of Dr. Mulligan as outlined below.

- The HIV program at the VA follows ~1000 patients in a primary care clinic staffed primarily by CDC volunteers. In addition, 2-3 ID fellows have their continuity clinic at the VA. All patients are included in a prospective cohort study- the HIV Atlanta VA Cohort Study. The clinic is integrated with several clinical research endeavors, including cohort studies and several epidemiologic studies of HIV and comorbid conditions. Areas of interest include hepatitis co-infections, antiviral resistance, pulmonary infections and MRSA. These studies are funded by VA, CDC, NIH and the pharmaceutical industry.

- The Hope Clinic of the Emory Vaccine Center is an international center of excellence and leadership for clinical and translational research on vaccines and other biomedical interventions targeting infectious diseases with public health importance. The Hope Clinic serves as the clinical arm of the Emory Vaccine Center. It is located in Decatur, approximately two miles from the Emory campus. Dr. Mulligan serves as Executive Director. In addition, Drs. Edupuganti, del Rio, Workowski, and Rouphael have active research projects at the site. Immediate disease targets for which clinical/translational programs are ongoing include AIDS, anthrax, avian influenza, malaria, mumps, pneumococcus, and yellow fever. Other projects include approaches to improve vaccine immunogenicity through protein conjugation, adjuvants, and DNA electroporation. In addition, the Hope Clinic has major commitments to:
mentoring and training of the next generation of vaccine investigators, particularly Infectious Disease Fellows interested in clinical and translational research careers; supporting basic science research on the immunology of human vaccination; and community-based education, prevention, and research. The Hope Clinic is an NIH-sponsored HIV Vaccines Trials Unit (HVTU) and one of eight national NIH-sponsored Vaccine and Treatment Evaluation Unit (VTEUs), charged with vaccine and treatment studies for all infectious diseases other than AIDS. Drs. Mulligan, Keyserling and Spearman direct this large multi-site consortium of clinical and translational research programs. A significant initial focus of the Emory VTEU is on better H5N1 avian influenza vaccine regimens, a component of US national pandemic influenza preparedness.

- The Division (especially Drs. Workowski, Eaton, Stephens, del Rio, and Shafer) has an expanding program in sexually transmitted infections, particularly *Chlamydia*, *Herpes simplex* virus, *Treponema pallidum*, and *Neisseria gonorrhoeae*, and works closely with the STD Prevention and Laboratory Programs at CDC and local health departments. For example, the Division is home for one of the regional U.S. laboratories for gonococcal antibiotic resistance testing as part of the CDC-funded Gonococcal Isolate Surveillance Program (GISP). In addition, the role of social networks in the transmission of sexually transmitted infections (STIs), HIV and tuberculosis is being explored.

- Tuberculosis is a major public health problem in Atlanta, an enormous global public health problem, and an important focus of clinical research efforts as well as laboratory based research efforts in the Division and at Emory. Examples include the CDC funded Tuberculosis Epidemiological Studies Consortium grant to Dr. Blumberg, the CDC-funded Tuberculosis Trials Consortium grant to Dr. Ray, and tuberculosis control and prevention both in the institutional setting and community in conjunction with the Georgia Division of Public Health and local health departments (Drs. Blumberg, Ray, Leonard). In addition, Dr. Leonard serves as the TB Medical Consultant to the Georgia Division of Public Health. Laboratory based projects include molecular epidemiologic studies assessing transmission dynamics of *M. tuberculosis* in Atlanta (Drs. Ray and Blumberg) as well as in the former Soviet Republic of Georgia. International tuberculosis research training is an important focus, and Dr. Blumberg serves as the PI for an NIH Fogarty Center supported Emory-Georgia TB Research Training Program. Other ongoing interests include the development and study of new diagnostic tests for latent tuberculosis infection (Drs. Blumberg, Leonard, Talati and del Rio) and TB/HIV in low and middle income countries (Zambia, Russian Federation, Georgia).

- **General Infectious Diseases Epidemiology** - The proximity of Emory University to CDC has led to the development of numerous collaborations between the Division of Infectious Diseases and investigators at CDC. The Georgia Emerging Infections Program (Dr. Farley-principal investigator, and Drs. Stephens, Rimland, and Ray) conducts population-based surveillance for infectious diseases occurring in the 20-county Atlanta metropolitan area. This project has provided critical data concerning the epidemiology of infections with *Haemophilus influenzae*, *Listeria monocytogenes*,
Neisseria meningitidis, Group A streptococci, Group B streptococci, penicillin-resistant S. pneumoniae, vancomycin-resistant enterococci (VRE), Cryptococcus neoformans, community acquired methicillin-resistant Staphylococcus aureus (MRSA), a variety of food-borne diseases, Creutzfeldt-Jakob Disease, and offers countless opportunities for additional research. The epidemiology of infections in patients with HIV/AIDS is studied intensively throughout the Emory system. Recently completed studies have addressed epidemiologic questions related to opportunistic pulmonary and intestinal infections.

**Supplemental training** in infectious diseases epidemiology and clinical research is available through the Rollins School of Public Health at Emory University (MPH in Epidemiology or International Health) as well as the Emory Master of Science in Clinical Research (MSCR) program. The MSCR Program provides didactic and mentored clinical and translational research training for physicians interested in a career in clinical investigation. This program is discussed in further detail above. Additional opportunities are available at CDC and through the joint Emory-CDC ID fellowship training activities.

**Healthcare Epidemiology** - Active healthcare epidemiology programs are in place at all four hospitals in the Emory system. Fellows are encouraged to participate in general infection control activities as well as outbreak investigations. Several techniques for molecular typing of isolates are available (laboratories of Drs. Blumberg, Farley, Ray, Satola, and Stephens). Research efforts have focused on the epidemiology of infections with methicillin-resistant S. aureus (MRSA)—both healthcare associated and community-acquired, C. difficile, M. tuberculosis, vancomycin-resistant enterococci (VRE), Group B streptococci, fungi, influenza, and parvovirus B19. Recent studies have also addressed the epidemiology of infections associated with intravascular devices. Antibiotic utilization and antimicrobial resistance is another major area of research interest of a number of faculty (Drs. Gaynes, Steinberg, Ribner, Ray, Jernigan, Blumberg, Jacob and DiazGranados).

**Bioterrorism Preparedness and Biodefense Research** - Emory faculty (Drs. Stephens, Hughes and others) in collaboration with CDC and local and state public health officials are involved in bioterrorism preparedness, investigations, molecular epidemiology and education. For example, Dr. Stephens serves as the Executive Director of the Southeastern Center for Emerging Biologic Threats (SECEBT), an Emory based, multi-institutional collaboration, administered out of the Woodruff Health Science Center, which includes representatives from academic institutions, state health departments and governmental and nonprofit organizations across the southeast. Dr. Stephens is also the primary investigator for Emory in the Southeast Regional Center of Excellence for Emerging Infections and Biodefense (SERCEB), the southeast region’s collaboration on the NIH Regional Centers of Excellence grant. Over the next 5 years, investigators from Emory University, Duke University, Vanderbilt University, the University of Alabama-Birmingham, the University of Florida, and other affiliate institutions will work together to develop new vaccines, therapeutics, and diagnostics to better protect the nation against potential bioterrorist threats.

**Global Health and Travel Medicine** - The Emory/Atlanta community has a strong
interest in infectious diseases in developing countries. Members of the faculty of the Division of Infectious Diseases have established collaborations and perform studies in Mexico, India, Ethiopia, Sudan, Rwanda, South Africa, Zambia, Thailand, the Republic of Georgia, Vietnam, and Venezuela. Dr. Phyllis Kozarsky has developed an outstanding international travel clinic at Emory Crawford Long Hospital. Dr. Carlos Franco coordinates clinical and research efforts at the Travel Clinic. The Travel Clinic is the site for several research studies (e.g., studies of efficacy of malaria chemoprophylaxis and hepatitis A vaccine). Dr. Mary Galinski, who is an affiliate scientist at Yerkes and the Emory Vaccine Center, joined the growing global effort to eradicate malaria by helping to establish a dedicated malaria research program which is currently conducting multiple trials aimed at assessing the safety and immunogenicity of several potential vaccines. The Division is also home for a NIH funded AIDS International Training and Research Program (AITRP) which allows close collaborations with developing countries in AIDS research and open overseas opportunities for our fellows (e.g., Mexico, the Republic of Georgia, Zambia, Rwanda, and Vietnam). Division investigators are also supported by an NIH funded Emory-Georgia Tuberculosis Research Training Program grant. In addition, Dr. Keith Klugman serves as the Director of the Respiratory and Meningeal Pathogens Research Unit in Johannesburg, South Africa. The Unit runs national surveillance in South Africa for blood and CSF isolates of pneumococci, meningococci, *H. influenzae* and *Salmonella*. Large vaccine and antibiotic clinical trials are conducted in Soweto and the molecular laboratory in Johannesburg does research on the molecular basis of resistance in these pathogens and tracks the molecular epidemiology of the strains. Dr. Klugman is also the convener of the Pneumococcal Molecular Epidemiology Network, which determines the nomenclature of global clones of pneumococci. Dr. James M. Hughes is leading the Center for Global Safe Water which is evaluating the impact of approaches to introducing the Safe Water System into communities and schools in Nyanza Province in Western Kenya in collaboration with the CDC, Rotary Atlanta and the Coca-Cola Company.

Other Global Health Activities - Examples of ID Fellow Research Opportunities

- **CDC**: Opportunities for research related to Global Health are also available through the CDC. Recent trainees have participated in studies of the immunology of schistosomiasis in Egypt, studies of the immunology of infections with *Trypanosoma cruzi* in Brazil, and the impact and prevention of malaria in pregnant women in Malawi.

- **Rwanda-Zambia HIV Research Group**: Dr. Susan Allen is Principal Investigator of the Rwanda-Zambia HIV Research Group. The RZHRG has research sites in Kigali, Rwanda; and the cities of Lusaka, Ndola, and Kitwe, Zambia. The RZHRG follows one of the largest cohorts of HIV discordant couples in the world and conducts research on the biology of transmission as well as clinical trials of behavioural and biomedical interventions to prevent HIV transmission. Recent trainees have participated in projects with the RZHRG involving observational research which spans policy, socio-demographic, behavioral, clinical, and laboratory aspects of HIV and related conditions.
including syphilis. The project sites have participated in a phase III trial of acyclovir in HIV+/HSV-2+ individuals in discordant couples to assess impact on transmission of HIV, and are preparing for vaginal microbicide trials as well. In addition, the sites support TB/HIV related research focusing on the development of new diagnostic tests for TB and on tuberculosis vaccine trials.

- **Global Health Institute.** In 2006 and as a result of a University-wide Strategic Planning process, Emory University made a major commitment and investment to global health activities at the institution through the establishment of the Global Health Institute (GHI) which is directed by Dr. Jeffrey Koplan, former Director of the CDC and now Vice President for Global Health at Emory University. The $55 million investment by the University to enhance and expand global health related activities plus additional funding through the Gates Foundation provides even further activities for fellows to become engaged in public health and research activities in the international arena. The Emory GHI has already funded important projects in Mexico, South Africa, India, Georgia and Zambia in which faculty and fellows of the division are currently involved.

**Bioethics Training** – All fellows receive training in human subject protection and ethics. These courses are conducted by the Emory Institutional Review Board (IRB) and the Emory Center for Ethics.

**VI. Opportunities for Research Training at CDC**

The combined Emory-CDC ID fellowship program offers three years of clinical and research training leading to eligibility for board certification in infectious diseases. The program is designed for physicians with training in internal medicine who wish to pursue a career in academic infectious diseases and/or public health. Two tracks are offered - one in epidemiology and the other in basic laboratory research in infectious diseases.

The **epidemiology track** includes a three year fellowship in epidemiology and clinical infectious diseases, which includes 12-15 months of clinical infectious diseases training and a block of 21-24 months of research in years 2 and 3 of fellowship training. All clinical rotations are held in the Emory-affiliated teaching hospitals. The emphasis of research in this track would be on joint CDC-Emory projects with an overall goal of linking prevention strategies to active clinical problems. Such studies might include population based, cohort or case-control studies or might have a molecular epidemiologic laboratory component. There is also an opportunity to pursue an MPH or MSCR degree during the third year of training.

The Emory-CDC **basic science laboratory research track** consists of a three year fellowship in basic laboratory research and clinical infectious diseases which would include 12 months of clinical infectious diseases training in year one and 24 months of basic laboratory research in a CDC laboratory (years 2 and 3). The laboratory research would be conducted under an established investigator with a joint Emory faculty appointment. An emphasis would be on laboratory projects of joint CDC/Emory interest.
VII. ACCREDITATION

The Emory Division of Infectious Diseases Fellowship Training Program has full accreditation by the American Board of Internal Medicine [ABIM] (last review in 2001) and the Accreditation Council for Graduate Medical Education (ACGME). The most recent ACGME review took place in September 2003. The Emory Division of Infectious Diseases received a full 5-year accreditation, effective January 30, 2004. The ACGME "commended the [Emory ID] program for its demonstrated substantial compliance with the Essentials of Accredited Residencies in Graduate Medical Education without citation".

VIII. APPLICATION PROCEDURE

Applications to the Emory ID Fellowship Training Program should be submitted through the Electronic Residency Application Service (ERAS). More information about ERAS and how to apply is available at their web site (www.aamc.org/eras).

Applications for Emory ID fellowship positions beginning July 1, 2010, should be submitted no later than March 31, 2009; we encourage applicants to submit applications by January 31, 2009. Selected candidates are interviewed between January and May. Candidates are invited for full-day visits generally on Wednesdays. The Emory Division of Infectious Diseases participates in the National Residency Matching Program (NRMP). More information about the match is available at www.nrmp.org.

Applicants wishing to further explore specific areas of interest are encouraged to contact the appropriate division members, the Program Director (wsarmst@emory.edu), Associate Program Director (mkleona@emory.edu) or the Emory ID Division Education Office at 404.616.3600.
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A. FULL-TIME FACULTY:

David S. Stephens, MD
Stephen W. Schwarzmann Distinguished Professor of Medicine, Professor of Microbiology and Immunology Professor of Epidemiology Department of Medicine, Director, Division of Infectious Diseases Vice President for Research, WHSC Emory University

Monica M. Farley, MD
Professor of Medicine Adjunct, Associate Professor of Microbiology and Immunology Associate Director, Division of Infectious Diseases Director, Georgia Emerging Infections Program

Wendy S. Armstrong, MD
Associate Professor of Medicine Program Director, Division of Infectious Disease Associate Medical Director, Infectious Disease Program, Ponce de Leon Center

Michael K. Leonard, Jr., MD
Associate Professor of Medicine Associate Program Director, Division of Infectious Disease Medical Director, Georgia DHR TB Program

Edward Aikens, MD
Senior Associate of Medicine

Albert L. Anderson, MD, MHS
Assistant Professor of Medicine

Jerry Blackwell, PhD
Assistant Professor of Medicine Associate Scientist, Center for AIDS Research

Henry M. Blumberg, MD
Professor of Medicine Professor of Epidemiology, Rollins School of Public Health Program Director, ACTSI Research Education and Clinical Research Training Programs Hospital Epidemiologist, Grady Memorial Hospital

Laura Broyles, MD
Assistant Professor of Medicine

Angela Caliendo, MD, PhD
Associate Professor of Medicine Professor of Pathology and Laboratory Medicine Vice Chair, Clinical Pathology Director, Emory Medical Laboratories Medical Director, Microbiology Laboratory Medical Director, Molecular Diagnostics Laboratory Director, Medical Microbiology Fellowship

Scott Chancey, PhD
Senior Research Associate
<table>
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<tr>
<th>Name</th>
<th>Title and Affiliation</th>
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<tr>
<td>Carlos del Rio, MD</td>
<td>Professor of Medicine, Vice-Chair for Grady Affairs and Chief of the Emory Medical Service, Grady Memorial Hospital</td>
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<td>Program Director of the Internal Medicine Residency Program</td>
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<td>Director for Clinical Sciences and International Research, Emory Center for AIDS Research (CFAR)</td>
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<td>Director of Emory AIDS International Training &amp; Research Program</td>
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<td>Carlos DiazGranados, MD</td>
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<td>Molly E. Eaton, MD</td>
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<td>Clinic Director, Emory Crawford Long Infectious Disease Clinic</td>
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<td>Srilatha Edupuganti, MD, MPH</td>
<td>Assistant Professor of Medicine</td>
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<td>Medical Director, The Hope Clinic</td>
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<td>Carlos Franco, MD, MPH</td>
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<td>Co-Director, Travel Well, International Travelers Medical Clinic</td>
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<td>Paula Frew, PhD, MPH</td>
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<td>Division of Infectious Diseases</td>
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<td>Assistant Professor of Behavioral Sciences and Health Education, Rollins School of Public Health</td>
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<td>Director of Health Communications and Applied Community Research - The Hope Clinic of the Emory Vaccine Research Center</td>
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<td>Mary Galinski, PhD</td>
<td>Associate Professor of Medicine</td>
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<td>Affiliate Scientist, Emory Vaccine Center</td>
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<td>David Garber, PhD</td>
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<td>Assistant to Director, Division of Healthcare Quality Promotion, CDC</td>
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<td>Carolyn V. Gould, MD, MS</td>
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<td>Medical Epidemiologist, Response Team., Division of Healthcare Quality Promotion Centers for Disease Control and Prevention</td>
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<td>Arash Grakoui, PhD</td>
<td>Assistant Professor of Medicine</td>
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<td>Clifford J. Gunthel, MD</td>
<td>Assistant Professor of Medicine</td>
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<td>James Hughes, MD</td>
<td>Professor of Medicine and Public Health</td>
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<td>Senior Scientific Advisor for Infectious Diseases, International Association of National Public Health Institutes (IANPHI)</td>
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<td>Senior Advisor, Center for Global Safe Water, School of Public Health</td>
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<td>Director, Program in Global Infectious Diseases</td>
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<td>Director, Southeastern Center for Emerging Biological Threats</td>
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<td>Jesse Jacob, MD</td>
<td>Assistant Professor of Medicine</td>
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<td>Associate Hospital Epidemiologist, Crawford-Long Hospital</td>
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<td>John A. Jernigan, MD, MS</td>
<td>Assistant Professor of Medicine</td>
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<td>Rafael L. Jurado, MD</td>
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<td>Assistant Chief of Medicine, VAMC</td>
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<td>Keith P. Klugman, MD</td>
<td>Professor of Medicine</td>
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<td></td>
<td>William H Foege Chair of Global Health, Rollins School of Public Health</td>
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<td></td>
<td>Director of Respiratory and Meningeal Pathogens Research Unit of MRC/NICD/Wits, Johannesburg, South Africa</td>
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<td>Phyllis E. Kozarsky, MD</td>
<td>Professor of Medicine</td>
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<td>Adjunct Assistant Professor of International Health</td>
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<td>Director of Travel Well, International Travelers Medical Clinic at Crawford Long Hospital</td>
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<td>Expert Consultant, Division of Global Migration and Quarantine, Centers for Disease Control and Prevention</td>
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<td>David Kuhaar, MD</td>
<td>Instructor of Medicine</td>
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<td>Jeffrey L. Lennox, MD</td>
<td>Professor of Medicine</td>
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<td>Medical Director, HIV/AIDS Programs, Ponce de Leon Center</td>
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<td>Emory Chief of Service, Grady Health Systems</td>
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<td>G. Marshall Lyon, III, MD</td>
<td>Assistant Professor of Medicine</td>
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<td>Director, Transplant Infectious Disease Program</td>
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<td>John E. McGowan Jr., MD</td>
<td>Professor of Medicine</td>
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<td>Professor of Epidemiology, Rollins School of Public Health</td>
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<td>Director, MD/MPH Programs, Emory University School of Medicine and Rollins School of Public Health</td>
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<td>Abeer A. Moanna, MD</td>
<td>Senior Associate of Medicine</td>
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<td>Alberto Moreno, MD</td>
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<td>Co-Director, Clinical and Translational Research Core, CFAR</td>
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<td>Assoc Director for Clinical Trials, The Emory Vaccine Center</td>
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<td>Minh Ly Thi Nguyen, MD</td>
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<td>Ighovwerha Ofotokun, MD</td>
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<td>Melissa K. Osborn, MD</td>
<td>Assistant Professor of Medicine</td>
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<td>Melody Pratt Palmore, MD</td>
<td>Assistant Professor of Medicine</td>
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<td>Director, Women’s Clinic, Ponce de Leon Center</td>
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<td>Henry T. Radziewicz, MD</td>
<td>Assistant Professor of Medicine</td>
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<td>Susan M. Ray, MD</td>
<td>Associate Professor of Medicine</td>
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Jyothi Rengarajan, PhD  
Assistant Professor of Medicine

Bruce S. Ribner, MD, MPH  
Associate Professor of Medicine
Hospital Epidemiologist, Emory University Hospital

David Rimland, MD  
Professor of Medicine
Chief, Infectious Diseases, VA Medical Center
Director, HIV/AIDS Program VA Medical Center

Nadine G. Rouphael, MD  
Instructor in Medicine, Division of Infectious Disease
Co-PI, Vaccine Treatment Evaluation Unit (VTEU)

Sarah Satola, PhD  
Senior Associate of Medicine

Jonas A. Shulman, MD  
Professor of Medicine
Senior Advisor to the Dean for Curriculum Development

Arjun Srinivasan, MD  
Assistant Professor of Medicine
Team Leader, Response Team, Division of Healthcare Quality Promotion CDC

James P. Steinberg, MD  
Professor of Medicine
Chief Medical Officer, Emory Crawford Long Hospital
Hospital Epidemiologist, Emory Crawford Long Hospital

Nimalie Stone, MD  
Assistant Professor of Medicine
Director of Antimicrobial Infections and Wesley Woods Center Epidemiologist

Naasha Talati, MD  
Instructor, Division of Infectious Disease

Yih-Ling Tzeng, PhD  
Assistant Professor of Medicine

David Weiss, PhD  
Assistant Professor of Medicine

Kimberly A. Workowski, MD  
Professor of Medicine
Chief Guidelines Unit, Epidemiology and Surveillance Branch,
Division of STD Prevention, CDC

Susu Zughaier, PhD  
Senior Associate of Medicine
B. FACULTY RESEARCH AND PUBLICATIONS

David S. Stephens, MD

Education:
- Medical School: Bowman Gray School of Medicine, Wake Forest University
- Internal Medicine Residency: Vanderbilt University Hospitals
- Fellowship: Vanderbilt University Hospitals

Current Appointment:
- Stephen W. Schwarzmann Distinguished Professor of Medicine,
- Professor of Microbiology and Immunology
- Professor of Epidemiology
- Director, Division of Infectious Diseases
- Vice President for Research
- Woodruff Health Sciences Center
- Emory University

Research and other Academic Interests:
- Genetic determinants of bacterial pathogenesis
- Pathogenesis and epidemiology of Neisseria meningitidis, Haemophilus influenzae and other agents of bacterial meningitis
- Molecular mechanisms of attachment, colonization and invasion of human mucosal surfaces by pathogenic bacteria
- Conjugative transposons and role of transposons in bacterial virulence
- Bacterial vaccines
- Innate Immunity

Selected Recent Publications:


Monica M. Farley, MD

Education:
- Medical School: University of Missouri
- Internal Medicine Residency: Emory University School of Medicine
- Fellowship: Emory University School of Medicine

Current Appointment:
- Professor of Medicine
- Adjunct, Associate Professor of Microbiology and Immunology
- Staff Physician, VA Medical Center, Atlanta
- Director, Georgia Emerging Infections Program
- Associate Director, Division of Infectious Diseases

Research and other Academic Interests:
My major laboratory research interests concern mucosal pathogenesis of *Haemophilus influenzae*. Experiments have focused on the mechanisms of attachment, colonization and invasion of human nasopharyngeal mucosa by *H. influenzae*. Current research involves a examination of the role of pili (a specific bacterial surface component) in mucosal attachment and pathogenesis and the characterization of capsule-specific genes.

My clinical research interest is in population-based surveillance and epidemiology of invasive bacterial pathogens including (*H. influenzae*, *N. meningitidis*, groups A and B *Streptococcus* and *S. pneumoniae*), and related vaccine effectiveness studies. I am the Principal Investigator for the CDC-funded Georgia Emerging Infections Program.

Selected Recent Publications:


28


Wendy S. Armstrong, MD

Education:
- Medical School: Harvard Medical School
- Internal Medicine Residency: University of Michigan Medical Center
- Chief Residency: University of Michigan Medical Center
- Fellowship: University of Michigan Medical Center

Current Appointment:
- Associate Professor of Medicine
- Program Director, Division of Infectious Disease
- Associate Medical Director, Infectious Disease Program, Grady Health Systems

Research and other Academic Interests:
My research interests are clinical and translational in HIV-infected patients and include 1) opportunistic infections in HIV-infected patients, primarily sulfon resistance in Pneumocystis jirovecii 2) HIV-associated fever of unknown origin, 3) solid organ and bone marrow transplantation in HIV-infected patients and 4) clinical trials pursuing treatment strategies in HIV with emphasis on salvage therapies and drug resistance.

Selected Publications:


Selected Book Chapters:


Michael K. Leonard, Jr., MD

Education:
Medical School: East Carolina University School of Medicine
Internship: University of Tennessee Hospitals
Residency: Vanderbilt University School of Medicine
Fellowship: Emory University School of Medicine

Current Appointment: Associate Professor of Medicine
Associate Program Director, Division of Infectious Disease
Staff Physician, Grady Memorial Hospital  
Medical Director, GA DHR TB Program

Research and Other Academic Interests:
My research is focused on the epidemiology of tuberculosis in HIV-infected patients; mortality associated with tuberculosis; hepatotoxicity related to co-infection of tuberculosis and hepatitis C; access to care for inner-city patients with HIV. I am also an investigator with the CDC TB Epidemiologic Studies Consortium (TBESC). In Tbilisi, Republic of Georgia, I work with the National TB Program and National Centers for Disease Control on drug resistant TB surveillance. Also in Tbilisi I serve as an infection control consultant at the Central Republican Hospital and am working on developing a hospital acquired infection surveillance program there. Other interests include medical education and history of medicine.

Selected Publications:


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**Edward L. Aikens, MD**

**Education:**

| Medical School: | Temple University School of Medicine |
| Residency: | Emory University School of Medicine |

**Current Appointment:** Senior Associate of Medicine

**Research and Other Academic Interests:**

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**Albert M.L. Anderson, MD, MHS**

**Education:**

| Medical School: | University of North Carolina at Chapel Hill |
| Graduate School: | Duke University |
| Residency: | Duke University |
| Fellowship: | Duke University |
Current Appointment: Assistant Professor in Medicine

Research and Other Academic Interests:
I am interested in HIV clinical research, specifically immunologic outcomes in patients on antiretroviral therapy as well as central nervous system involvement of HIV and other infectious diseases.

Selected Publications:


Jerry L. Blackwell, PhD

Education:
Undergraduate: University of Georgia
PhD: Georgia State University
Postdoctoral Training: University of Alabama

Current Appointment: Assistant Professor of Medicine
Associate Scientist, Center for AIDS Research

Research Interests:
My research interests are in the areas of vaccine development, gene therapy and immune modulation. My lab's HIV vaccine efforts are focused towards developing better vaccine vectors for delivering novel antigens with the rationale that this combination may effectively protect from an HIV-1 infection. In addition, many of the adenovirus-vectored vaccines that we use for infectious diseases can be modified for use in gene therapy applications for malignancies, which is another area of investigation in my lab. Finally, I am interested in understanding ways to modulate and improve cellular and humoral vaccine-induced immune responses.

Selected Publications:


Henry M. Blumberg, MD

Education:
Medical School: Vanderbilt University School of Medicine
Internal Medicine Residency: Emory University School of Medicine
Chief Resident: Emory Crawford Long Hospital
ID Fellowship: Emory University School of Medicine

Current Appointments:
Professor of Medicine, Emory University School of Medicine
Professor of Epidemiology, Rollins School of Public Health  
Director, Clinical and Translational Research Training Programs, Atlanta Clinical and Translational Science Institute, Woodruff Health Sciences Center, Emory University  
Hospital Epidemiologist, Grady Memorial Hospital

Research and other Academic Interests:
Research interests include healthcare and molecular epidemiology (especially investigations focused on nosocomial and community acquired methicillin-resistant *Staphylococcus aureus* [MRSA] and emerging multidrug resistant organisms); tuberculosis (nosocomial and community control, molecular and clinical epidemiology, new diagnostics, tuberculosis-nutrition related interactions, international research including that in the former Soviet Republic of Georgia); and clinical and translational research training.

Selected Publications:


Laura N. Broyles, MD

Education:

Medical school: Emory University School of Medicine
Internal medicine residency: Barnes-Jewish Hospital, Washington University School of Medicine.
Epidemic Intelligence Service Officer – Centers for Disease Control and Prevention; Division of HIV/AIDS Prevention Fellowship: Emory University School of Medicine.

Current appointment: Assistant Professor of Medicine

Research and other academic interests:

HIV clinical care, especially in indigent and underserved patient populations; beta-hemolytic streptococci; delivery of HIV care in international resource-limited settings

Selected publications:


Angela M. Caliendo, MD, PhD

Education:

Medical School: Case Western Reserve University School of Medicine
Residency: Brigham and Women’s Hospital
Fellowship: Massachusetts General Hospital
PhD: Case Western Reserve University School of Medicine

Current Appointment: Associate Professor of Medicine
Professor of Pathology and Laboratory Medicine
Vice Chair, Clinical Pathology
Director, Emory Medical Laboratories
Medical Director, Molecular Diagnostics Laboratory
Medical Director, Microbiology Laboratory
Director, Medical Microbiology Fellowship
Research and Other Academic Interests:

- **Studies of HIV in the female genital tract**
  In collaboration with Dr. Susan Cu-Uvin at Brown University, we are evaluating HIV-1 RNA burden and the development of antiretroviral resistance in the plasma and cervical secretions of HIV-1 seropositive women. The goal of these studies is to determine how viral load levels and resistance profiles differ in the female genital tract and plasma compartments. This work has implications for both vertical and heterosexual transmission of HIV-1.

- **Development and evaluation of molecular testing for Infectious Diseases**
  My research laboratory has been actively involved in the development and clinical evaluation of molecular tests for the diagnosis and monitoring of infectious diseases. These studies focus on both the analytical and clinical performance of the tests.

- **Co-Director of Virology and Drug Discovery Core for the Emory Center for AIDS Research (CFAR)**
  The preclinical and clinical virology laboratories provide support to investigators studying HIV by providing a range of molecular testing for the detection and monitoring of SIV, HIV-1, HIV-2, CMV, HCV, and sexually transmitted diseases. This testing supports investigators at Emory as well as those associated with other CFAR centers across the United States. The Core is also involved with training investigators in molecular methods.

**Selected Publications:**


Scott Chancey, PhD
**Education:**
- BS: Auburn University
- MS: Auburn University
- PhD: University of Arizona

**Current Appointment:** Senior Research Associate

**Research and Other Academic Interests:**
Antibiotic resistance mechanisms in *Streptococcus pneumoniae*.

**Selected Publications:**


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**Carlos del Rio, MD**

**Education:**
- Medical School: Universidad La Salle, Mexico City, Mexico
- Residency: Emory University School of Medicine
- Chief Resident: Crawford Long Hospital of Emory University
- Fellowship: Emory University School of Medicine

**Current Appointment:** Professor of Medicine
Vice Chair for Grady Affairs and Chief of the Emory Medical Service at Grady Memorial Hospital
Program Director, J. Willis Hurst Internal Medicine Residency Program
Director for Clinical Sciences and International Research, Emory Center for AIDS Research
Director of the Emory AIDS International Training and Research Program.

Research and Other Academic Interests:
My research focuses on access to care and barriers to care among HIV-infected persons in the United States as well as healthcare resource utilization by HIV-infected patients. I also do epidemiologic research on opportunistic infections and HIV/AIDS-associated risk behaviors as well as adherence and the impact of therapy on behavior. I am an investigator for the ACTG, HVTN and HPTN. Finally, I am also interested in the spectrum and impact of AIDS in developing countries and issues related to access to care in resource poor settings.

Selected Publications:


Carlos DiazGranados, MD
Education:
Medical School:               Colegio Mayor de Nuestra Señora del Rosario-Hospital de San Jose
Residency:                       University of Miami – Jackson Memorial Hospital
Chief Resident: University of Miami – Jackson Memorial Hospital
Fellowship: Emory University School of Medicine
Master of Science: Emory University School of Arts and Sciences

Current Appointment: Assistant Professor of Medicine
Assistant Hospital Epidemiologist and Director of Antibiotic Utilization, Grady Memorial Health System

Research and Other Academic Interests:
Interests: 1) Antimicrobial utilization. 2) Antimicrobial resistance. 3) Hospital Epidemiology. 4) International HIV/AIDS. 5) Tropical infectious diseases.

Current studies: 1) Impact of an Antimicrobial utilization physician as a component of an interdisciplinary team on clinical and ecologic outcomes of critically ill patients. 2) Non-ID clinical pharmacist active participation in antimicrobial stewardship. 3) Predictors of imipenem-requiring organisms, piperacillin/tazobactam-requiring organisms, and imipenem-resistant organisms in patients with suspected gram-negative infections. 4) HIV resistance in Colombia. 5) Retrospective cohort study on treatment of bacteremia caused by ESBL producing enterobacteriaceae. 6) Prevalence of MRSA in military and competitive sports personnel in Bogota, Colombia.

Selected Publications:


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**Molly E. Eaton, MD**

**Education:**

Medical School: Washington University School of Medicine  
Residency: Emory University School of Medicine  
Fellowship: Emory University School of Medicine  

**Current Appointment:**  
Assistant Professor of Medicine  
Staff Physician, Grady Memorial Hospital  
Clinic Director, Emory Crawford Long Infectious Disease Clinic  

**Research and Other Academic Interests:**

Clinical manifestations, diagnosis, and response to therapy of syphilis, especially in HIV co-infected patients. Antiretroviral clinical trials in HIV-infected persons. I participate in the NIH-sponsored AIDS Clinical Trials Group.

**Selected Publications:**


Other Publications/Book Chapters

Srilatha Edupuganti, MD, MPH

Education:
Medical School: LSU School of Medicine, New Orleans, LA
MPH: UNC-Chapel Hill School of Public Health
Residency: University of Texas Southwestern Medical School, Dallas, TX
Fellowship: Infectious Diseases, Emory University School of Medicine and UNC-Chapel School of Medicine

Current Appointment: Assistant Professor of Medicine

Research and Other Academic Interests:
Sri Edupuganti, MD, MPH joined Emory University in September 2006 as an Assistant Professor of Medicine. She is the Medical Director of the Hope Clinic of the Emory Vaccine Center which is dedicated to clinical vaccine research. Her main interests are performing vaccine trials for HIV vaccines, non-HIV vaccines including yellow fever vaccines, avian flu vaccines and others. She is
also interested in translational research pertaining to vaccine immunology. Prior to her appointment at Emory, she was a faculty member at UNC-Chapel Hill for 6 years where she conducted several phase I Merck HIV vaccine trials.

Selected Publications:


**Carlos E. Franco, MD, MPH**

**Education:**

- Medical School: La Salle University School of Medicine
- Graduate School: Emory University, School of Public Health
- Residency: Emory University School of Medicine
- Fellowship: Infectious Diseases, Emory University

**Current Appointment:**

- Assistant Professor of Medicine
- Co-Director, Travel Well, International Travelers Medical Clinic

**Research and Other Academic Interests:**

I am interested in travel and tropical medicine as well as vaccine research.

**Selected Publications:**


Paula Frew, PhD, MPH

Education:

Graduate School: PhD - University of Georgia, College of Public Health
MPH - Emory University, Rollins School of Public Health
MA - San Diego State University

Undergraduate: BA - University of California at San Diego (Thurgood Marshall College)

Current Appointments: Assistant Professor of Medicine, Division of Infectious Diseases
Assistant Professor of Behavioral Sciences and Health Education, Rollins School of Public Health
Director of Health Communications and Applied Community Research - The Hope Clinic of the Emory Vaccine Research Center

**Research and other Academic Interests:**

Engaging communities in clinical research and promoting the adoption of new infectious disease "prevention technologies" particularly among those who may be disproportionately affected by disease in the community is a scientific and ethical imperative. Consequently, issues impacting infectious disease prevention research and future immunization and product uptake among women and minorities are a centerpiece of my current efforts. The facilitators and barriers in the acceptance of clinical research, as well as future challenges to mass immunization among priority populations (e.g., women and minorities at risk for HIV/STI infection) continue to be explored for a variety of pandemic concerns. This vibrant "participatory action research" agenda also extends to the development and evaluation of novel evidence-based HIV/AIDS "indigenous interventions" to address sociocultural and epidemiologic determinants of risk in community settings.

**Selected Publications:**


Mary R. Galinski, PhD

Education:
PhD: New York University School of Medicine
Post-Doctoral: New York University School of Medicine

Current Appointment:
Associate Professor of Medicine
Affiliate Scientist, Emory Vaccine Center
Yerkes National Primate Research Center

Research and Other Academic Interests:
Molecular Parasitology focusing on Malaria/Plasmodium: Research addresses molecular, cellular and immunological questions on malaria parasitism in humans and non-human primates, which are relevant for the development, testing and application of effective malaria vaccines and/or drugs. Clinically focused research is carried out in endemic regions of Brazil and with vaccine development partners.

Advocacy, Public Awareness and Education on Malaria: Service activities focus on the global picture of malaria through involvement in several international initiatives and Malaria Foundation International (www.malaria.org) programs to facilitate the development and implementation of solutions to the health, economic and social problems caused by malaria.

Selected Publications:


David A. Garber, PhD

Education:
Graduate School: Harvard University
PhD, Microbiology & Molecular Genetics
Post-Doctoral Training: Emory University

Current Appointment: Assistant Professor of Medicine

Research and Other Academic Interests:
Molecular virology and immunology of poxviruses focusing on the development of Modified Vaccinia Ankara (MVA)-based vaccines against HIV/AIDS.

Publications:


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**Robert P. Gaynes, MD**

**Education:**
- Medical School: University of Chicago Pritzker School of Medicine
- Residency: Michael Reese Hospital
- EIS Officer: Centers for Disease Control
- Fellowship: University of Chicago

**Current Appointment:**
- Associate Professor of Medicine
- Adjunct Professor of Epidemiology, Rollins School of Public Health;
- Hospital Epidemiologist, VAMC;
Assistant to Director, Division of Healthcare Quality Promotion, Centers for Disease Control

Research and Other Academic Interests:
Using the latest technology in the computerized patient record system and clinical decision support, to develop a computerized surveillance on antimicrobial use, nosocomial infections, potential risk factors, pathogens and their antimicrobial susceptibility patterns in Atlanta VAMC. This will aid in the development of efficient preventions strategies and guidelines to reduce the risk of nosocomial infections and antimicrobial resistance in acute or chronic health-care settings. Examining antimicrobial choice in a multihospital study to determine intervention(s) most effective in optimizing antimicrobial use.

Selected Publications


Carolyn V. Gould, MD, MS

Education:
Medical School: University of Pennsylvania School of Medicine
Residency: Hospital of the University of Pennsylvania
Clinical/Postdoctoral Fellowship: Hospital of the University of Pennsylvania
Masters of Science in Clinical Research: Rollins Sch. of Public Health, Emory University

Current Appointment:
Assistant Professor of Medicine
Medical Epidemiologist, Response Team
Division of Healthcare Quality Promotion, Centers for Disease Control and Prevention
LCDR, USPHS
Research and Academic Interests:
My primary interest is in prevention of healthcare-associated infections and antibiotic resistance. My current activities and research primarily involve responding to healthcare-associated infectious disease outbreaks and prevention and control of *C. difficile* infections. I am also leading the revision of HICPAC’s Guideline for Prevention of Catheter-associated Urinary Tract Infections.

Selected Publications:


Other Publications/Book Chapters:


Arash Grakoui, PhD
Education:
- Graduate School: Washington University in St. Louis
- Fellowship: The Rockefeller University

Current Appointment: Assistant Professor of Medicine

Research and Other Academic Interests:
Hepatitis C virus (HCV) infection chronicity and its detrimental long-term sequelae now comprise the leading indication for liver transplantation in the United States. There are currently nearly 4 million HCV carriers in the U.S., an estimated 170 million people worldwide, and in the next few years the number of annual U.S. deaths from HCV-induced liver cancer may surpass deaths caused by HIV. The paradoxical observation that HCV establishes a persistent infection despite the presence of humoral and cellular immune responses has provided the impetus to rigorously explore the host response to HCV. Our laboratory aims first to understand the role of the immune response in combating hepatitis C virus infection and second, to elucidate methods of augmenting the natural immune response to prevent HCV-associated liver disease and cancer.

Selected Publications:


Clifford Gunthel, MD

Education:
Medical School: Emory University School of Medicine
Internship and Residency: Emory University Affiliated Hospitals
Chief Resident: Crawford Long Hospital, Atlanta, GA
Fellowship: Infectious Diseases, Emory University School of Medicine; Hematology-Oncology, University of California, San Francisco

Current Appointment: Assistant Professor of Medicine
Staff Physician, Grady Memorial Hospital

Research and Other Academic Interests:
The pathogenesis and clinical management of HIV-associated malignancies. With special interest in the epidemiology and biology of human herpes virus 8 as it relates to Kaposi’s sarcoma and primary effusion lymphomas. Also with interest in the clinical management of AIDS-associated high-grade lymphomas.

Selected Publications:


5. Ng VL, Dimaid JM, Hurt MH, Gunthel CJ, Lyerly HK, McGrath MS: Pathogenesis of transplant-
associated B-cell lymphomas differ from those associated with AIDS. Blood (supp) 1994; 84(10):2428.


James Hughes, MD

Education:

Medical School: Stanford University School of Medicine
Residency: University of Washington
Fellowship: University of Virginia, Division of Infectious Diseases

Current Appointment: Professor of Medicine and Public Health
Director, Program in Global Infectious Diseases, School of Medicine
Director, Southeastern Center for Emerging Biologic Threats, School of Medicine
Senior Scientific Advisor for Infectious Diseases, International Association of National Public Health Institutes (IANPHI)
Senior Advisor, Center for Global Safe Water, Rollins School of Public Health
Research and Other Academic Interests:
Identifying factors contributing to the emergence and reemergence of infectious diseases, with a focus on vectorborne and zoonotic diseases, water-related diseases, and antimicrobial resistance; evaluating policies and practices for preventing, rapidly detecting, and responding to infectious diseases; and assessing approaches to strengthening global capacity to address microbial threats.

Selected Publications


Jesse T. Jacob, MD

Education:
Medical School: University of South Florida
Internal Medicine Residency: Cleveland Clinic Foundation
Fellowship: Emory University School of Medicine

Current Appointment:
Assistant Professor of Medicine
Co-Director, Antimicrobial Assistance Program and Associate Hospital Epidemiologist, Emory Crawford Long Hospital
Guest Researcher, Division of Healthcare Quality Promotion, CDC

Research and other Academic Interests:
My clinical research interest is in healthcare associated infections especially nosocomial bacteremias and device-associated infections such as central line-associated bloodstream infections and ventilator-associated pneumonias. I am also interested in prevention of infections with multidrug resistant organisms such as MRSA. One current project is a case-control study to assess the risk factors, particularly prior healthcare exposure, for community-onset MRSA bacteremia. Another study plans to investigate the effect of a multi-component intervention in reducing S. aureus bloodstream infections in hemodialysis patients.
Selected Recent Publications:


John Jernigan, MD, MS

Education:
Medical School: Vanderbilt University School of Medicine
Graduate School: University of Virginia
Residency: Vanderbilt University Department of Medicine
Chief Resident: St. Thomas Hospital, Vanderbilt University Department of Medicine
Fellowship: University of Virginia

Current Appointment: Assistant Professor of Medicine
Deputy Chief, Prevention and Response Branch
Division of Healthcare Quality Promotion, CDC
Commander, US Public Health Service Commissioned Corps

Research and Other Academic Interests:
Epidemiology of nosocomial infections with and emphasis on the epidemiology of antibiotic-resistant gram-positive pathogens such as methicillin-resistant Staphylococcus aureus and vancomycin-resistant enterococci, including molecular epidemiologic studies; bioterrorism-related anthrax, Severe Acute Respiratory Syndrome (SARS)

Selected Publications:


Rafael L. Jurado, MD

Education:
- Medical School: Universidad de Guayaquil School of Medicine
- Residency: Emory University School of Medicine
- Fellowship: Emory University School of Medicine

Current Appointment:
- Associate Professor of Medicine
- Assistant Chief of Medicine, VA Medical Center
- Staff Physician, Grady Memorial and VA Hospitals

Selected Publications:


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**Keith P. Klugman, MD**

**Education:**
- Medical School: University of the Witwatersrand, South Africa
- PhD: University of the Witwatersrand, South Africa
- Residency: Johannesburg Hospital, South Africa
- Fellowship: Rockefeller University, New York, New York

**Current Appointment:**
- Professor of Medicine
- William H Foege Chair of Global Health, Rollins School of Public Health.
- Director of Respiratory and Meningeal Pathogens Research Unit of MRC/NICD/Wits, Johannesburg, South Africa

**Research and Academic Interests:**
Pneumococcal diseases; epidemiology of antibiotic resistance in pneumococci; vaccines for bacterial diseases; bacterial/viral interaction in infectious diseases.

**Selected publications:**


Phyllis E. Kozarsky, MD

Education:
- Medical School: Albert Einstein College of Medicine
- Residency: Albert Einstein College of Medicine and Bronx Municipal Hospital Center
- Fellowship: Emory University School of Medicine

Current Appointment:
- Professor of Medicine
- Adjunct Assistant Professor of International Health
- Director of Travel Well, International Travelers Medical Clinic at Crawford Long Hospital
- Staff Physician, Crawford Long & Emory Hospitals
- Expert Consultant, Division of Global Migration and Quarantine, Centers for Disease Control and Prevention

Research and Other Academic Interests:
Current research efforts have primarily focused on issues in clinical tropical medicine and traveler’s health, and include: several short-term studies performed by those in training: For example, epidemiologic studies of travelers and post-travel evaluations, and analyses using data from the GeoSentinel surveillance system (through a cooperative agreement with CDC).

Selected Publications:


Other Publications

Co editor – U.S. Public Health Service. CDC. Health Information for International Travel 2008


David Kuhar, MD

Education:
Medical School: Emory University School of Medicine
Residency: New York University
Fellowship: Mount Sinai Medical Center

Current Appointment: Instructor of Medicine

Research and Other Academic Interests:
My research interests are in HIV drug resistance and in clinical trials of new drugs for the treatment of HIV infection. Also, I’m interested in outpatient parenteral antimicrobial administration outcomes.

Jeffrey L. Lennox, MD

Education:
Medical School: University of Colorado
Residency: Walter Reed Army Medical Center
Fellowship: Walter Reed Army Medical Center

Current Appointment: Professor of Medicine
Emory Chief of Service for Infectious Diseases, Medical Director, Infectious Disease Program, Grady Health System, Staff Physician, Grady Memorial Hospital

Research and Other Academic Interests:
My current research focus is on testing new and improved treatments for HIV infection. I am also interested in identifying factors which improve adherence and compliance to antiretroviral therapy.
Selected Publications:


George Marshall Lyon, III, MD

Education:
Medical School: Marshall University School of Medicine, Huntington, WV
Graduate School: Harvard University School of Medicine, Boston, MA – MMSc
Fellow, Clinical Investigator
Training: Harvard-MIT Health Sciences and Technology-Beth Israel Deaconess Medical Center, in collaboration with Pfizer, Inc.
Visiting Scientist: Whitehead Institute for Biomedical Research, Fink Lab
Clinical Fellow, ID: Massachusetts General Hospital and Brigham and Women’s Hospital combined program. Boston, MA
EIS Officer: Public Health Service, Centers for Disease Control and Prevention, Atlanta, GA
Internal Medicine & Pediatric Residency: Duke University Medical Center, Durham, NC

Current Appointment: Assistant Professor of Medicine
Guest Researcher, Centers for Diseases Control & Prevention

Research Interests:
Clinical research interests include: The epidemiology and prevention of candidiasis in high risk patient populations; the detection, prevention, and treatment of infections in solid organ transplant recipients. Novel diagnostic techniques for invasive fungal infections, and mechanisms of antifungal resistance among Candida albicans.

Basic/translational research interests include: the virulence, pathogenesis and genetic subtyping of Candida albicans using DNA microarrays; antifungal susceptibility testing of fungal isolates. Mechanisms of antifungal resistance among Candida species using DNA microarrays.

Selected Publications:


**John E. McGowan, Jr, MD**

**Education:**
- Medical School: Harvard Medical School
- Residency: Boston City Hospital, Harvard Medical Service
- EIS Officer: Centers for Disease Control and Prevention
- Research Fellow in ID: Boston City Hospital, Harvard Medical Service

**Current Appointment:**
- Professor of Epidemiology, Rollins School of Public Health
- Professor of Medicine
- Professor of Pathology and Laboratory Medicine
- Director, MD-MPH Program, Emory University Schools of Medicine and Public Health

**Research and Academic Interests:**
Antimicrobial resistance and usage practices; relationship of antimicrobial use and resistance; epidemiology and mechanisms of antimicrobial resistance, especially those associated with the healthcare setting; Infectious disease epidemiology.

**Selected Publications 2006-2008:**


**Abeer A. Moanna, MD**

**Education:**
- Medical School: American University of Beirut, Lebanon
- Residency: Emory University School of Medicine
- Chief Resident: Emory University Hospital
- Fellowship: Emory University School of Medicine

**Current Appointment:** Senior Associate of Medicine

**Research and Other Academic Interests:**
HIV immunopathogenesis and HIV clinical/translational research. During fellowship, my research in the laboratory of Guido Silvestri M.D. at the National Primates Center at Emory University (Yerkes) involved looking at the role of immune activation in HIV pathogenesis through studying the role of IL-2 administration to HIV infected subjects and its effect on markers of immune activation.

Currently, I am working on a study of “Inflammatory markers and biomarkers of endothelial cell activation in HIV-infected subjects”. Little is known about the role of inflammatory markers in HIV-infected patients with or at risk of CVD. The specific aims of this study are to explore the role of inflammatory markers in HIV+ patients. Highly sensitive C-reactive protein (hsCRP) will be the primary inflammatory marker measured in these analyses. CD40 ligand, intracellular adhesion molecule-1 (ICAM-1), vascular cell adhesion molecule-1 (VCAM-1) and plasminogen activator inhibitor-1 (PAI-1) will also be analyzed as additional prototypical markers of inflammation.

**Selected Publications:**


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**Alberto Moreno, MD**

**Education:**
Medical School: Pontificia Universidad Javeriana, Bogotá, Colombia

Fogarty Fellowship: New York University School of Medicine, Department of Medical and Molecular Parasitology, New York, NY

**Current Appointment:**
Assistant Professor of Medicine

**Research and Academic interests:**

**Malaria Vaccine Development:** Design and testing of chimeric constructs as delivery platforms for effective malaria vaccines. Preclinical assessment of the safety, immunogenicity and efficacy of malaria vaccines candidates. Cross-sectional studies in endemic areas of malaria designed to evaluate the natural immunity to malaria vaccine candidates.

**Pathophysiology of severe malaria:** Identify molecular mechanisms involved in the pathogenesis of malarial anemia and coagulopathy. Characterize bone marrow dysfunction in non-human primate models of severe malaria. Design and testing novel intervention measures to improve the clinical outcome of malaria.

**Selected Publications:**


\textbf{Mark Mulligan, MD}

\textbf{Education:}
- Medical School: University of Texas Southwestern Medical School, Dallas, TX
- Residency: University of Alabama at Birmingham
- Fellowship: University of Alabama at Birmingham

\textbf{Current Appointment:}
- Professor of Medicine
- Executive Director, The Hope Clinic of the Emory Vaccine Center
- Co-Director, Clinical and Translational Research Core, CFAR
- Assoc Director for Clinical Trials, The Emory Vaccine Center

\textbf{Research and Other Academic Interests:}
Clinical trials and translational studies of vaccines and treatments for infectious diseases affecting public health. Translational research to understand the basis for protective human immunity to infectious agents. Clinical and translational research training of a new generation of vaccinologists.

\textbf{Selected Publications:}


Minh Ly Nguyen, MD, MPH

Education:
- Medical School: Temple University School of Medicine
- Residency: Lehigh Valley Hospital
- Fellowship: Infectious Diseases, University of Pittsburgh
- Post graduate: MPH, Rollins School of Medicine

Current appointments:
- Assistant Professor of Medicine, Division of Infectious Diseases
- Attending physician, Women’s Ponce de Leon Clinic
- Attending physician, Grady Memorial Hospital
- Attending physician, Fulton County Health Department, TB Division
- Guest researcher, Center for Diseases Control, Division TB elimination

Research and Academic Interests:
My interests are varied and currently are centered on using epidemiologic tools to determine trends in clinical settings. Current projects include outcomes of antiretroviral therapy in naïve HIV-infected patients, effect of gender and aging on response to HAART, incidence trends of non-AIDS defining cancers in HIV patients, as well as trends in drug resistance in tuberculosis-infected patients in Russia.
Selected Publications:


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**Ighovwerha Ofotokun, MD, MSc**

**Education:**
- Medical School: University of Benin, Nigeria
- Residency: University of Michigan, Ann Arbor
- Fellowship: University of Michigan, Ann Arbor

**Current Appointment:**
- Assistant Professor of Medicine
- Staff Physician, Grady Memorial Health System

**Research Interests:**
My research interest is in translational HIV clinical pharmacology aimed at optimizing therapeutic outcomes in treatment naïve and in treatment experienced HIV-infected individuals. I also participate in international HIV/AIDS research activities that are aimed at understanding the social and sexual network of the spread of HIV in Africa, in addition to exploring cost effective ways of delivering HIV education to rural communities in Africa.

**Selected Publications:**


Melissa K. Osborn, MD

Education:
Medical School: The Ohio State University College of Medicine
Residency: Emory University School of Medicine
Fellowship: Emory University School of Medicine

Current Appointment: Assistant Professor of Medicine

Research Interests:
Melissa Osborn has completed a masters in clinical research with the aim of developing a clinical trials program for patients coinfected with HIV and hepatitis B or C. Current research interests include mechanisms of response to hepatitis C therapy, hepatitis in hemophilia patients, and differences in the natural history and treatment response of hepatitis C in HIV.

Selected Publications:


Melody Pratt-Palmore, MD

Education:
Medical School: University of Cincinnati College of Medicine
Residency: Presbyterian-University of Pennsylvania Medical Center
Fellowship: Thomas Jefferson University Hospital

Current Appointment: Assistant Professor of Medicine
Medical Director, Women’s Clinic Grady Infectious Disease Program, Ponce de Leon Center

Research and other Academic Interests:
My primary interest lies in improving the delivery of health care to HIV infected women. My research focus thus is centered around this concept. I am currently involved in 3 research projects.

Selected Publications:


Henry Radziewicz, MD

Education:
- Medical School: State University of New York
- Internal Medicine & Psychiatry Residency: Duke University School of Medicine
- Fellowship: Emory University School of Medicine

Current Appointment: Assistant Professor of Medicine
- Staff Physician, Grady Health Systems

Research Interests:
Understanding the adaptive CD8+ T cell response in chronic viral infection and the interaction of negative T cell signals on waning immune responses.

Selected Publications:


Susan M. Ray, MD

Education:
- Medical School: Emory University School of Medicine
- Residency: Emory University School of Medicine
- Chief Resident: Atlanta VA Medical Center
- Fellowship: Emory University School of Medicine

Current Appointment:
- Associate Professor of Medicine
- Associate Hospital Epidemiologist, Grady Health System

Research and Other Academic Interests:
My research activities focus on the epidemiology, prevention and treatment of infectious diseases affecting the urban indigent minority population both in the community and in the hospital:
- Epidemiology, treatment and prevention of invasive MRSA infections – changes in healthcare and community settings related to the emergence of CAMRSA
- Clinical trials of therapy of tuberculosis infection and disease
- Clinical presentation and management of HIV/TB
- Prevention of nosocomial TB exposures
- Prevention of needlestick injuries and other blood and body fluid exposures among HCWs
- Nosocomial bloodstream infections: epidemiology and prevention
- Epidemiology of M. kansasii disease and other NTM at Grady
- Epidemiology and prevention of pneumococcal disease
- Racial and ethnic disparities in adult immunization rates
- Molecular epidemiology of tuberculosis

Service activities/interests:
Protection human research subjects: I serve as a Vice-Chair for Emory Institutional Review Board.

Needlestick prevention center: I am the founder and physician director of the Woodruff Health Sciences Center Needlestick Prevention Center (established Sept 2007).

Selected Publications:


Jyothi Rengarajan, PhD

Education:
PhD: Division of Medical Sciences, Harvard University, Cambridge, MA
MS: Biological Sciences Carnegie Mellon University, Pittsburgh, PA
BSc: Life Sciences and Biochemistry St. Xavier’s College, University of Bombay, India

Current Appointment: Assistant Professor, Division of Infectious Disease Core Investigator, Emory Vaccine Center Emory University School of Medicine

Research Interests: We are interested in understanding how pathogens evade host immunity. Tuberculosis (TB) provides an excellent system to dissect the molecular basis of infection due to the dynamic interactions between Mycobacterium tuberculosis and immune cells. M. tuberculosis is one of the world’s most successful human pathogens and is responsible for the deaths of up to 3 million people annually. The AIDS pandemic and MDR-TB further underscore the global public health challenge that TB presents. Developing vaccines and better therapeutics for TB is thus an important goal in our research efforts.

The major questions that we seek to address are: How does M. tuberculosis survive in the host? Why does the host fail to eliminate M. tuberculosis? A fundamental aspect of TB that encompasses both these questions involves the M. tuberculosis-macrophage interface. Macrophages are central to host defense against microbes, but M. tuberculosis has evolved to evade their anti-microbial functions. We have used functional genomics to comprehensively determine the genome-wide requirements for M. tuberculosis survival and adaptation in host macrophages and in vivo in mice. We are characterizing several mutants that are defective for intracellular growth to better understand pathogenesis mechanisms and bacterial modulation of immunity using in vitro and in vivo model systems.

We also aim to dissect the molecular pathways involved in the host innate immune response to infection. We are developing proteomic approaches to analyzing signaling pathways in infected
macrophages and dendritic cells using mass spectrometry techniques. These studies will shed light on how *M. tuberculosis* manipulates innate immune function at the molecular level.

We are also interested in translating and enhancing lab-based findings by working in collaborative projects within human population-based settings of tuberculosis infection. Human studies are important for understanding tuberculosis latency and host protective immunity for vaccine development. Other interests include understanding mechanisms of drug resistance in mycobacteria and identifying targets for new chemotherapeutics and immunomodulatory therapies.

Selected Publications:

Bruce S. Ribner, MD, MPH

Education:
Medical School: Harvard Medical School  
Residency: Mount Sinai Hospital  
Fellowship: Mount Sinai Hospital  
MPH-Epidemiology: University of Michigan School of Public Health

Current Appointment: Associate Professor of Medicine  
Epidemiologist, Emory University Hospital and The Emory Clinic

Research and Other Academic Interests:
Epidemiology, prevention, and management of infectious diseases, primarily nosocomial, or hospital-acquired, infectious diseases: defining risk factors, designing interventions for prevention, and evaluating newer devices and agents for the prevention of infections with, and treatment of infections caused by, resistant, hospital-acquired, organisms. Developed protocols for management of patients with serious communicable diseases, and director of the unit at Emory University Hospital designed to care for patients with these infections. This is one of only three such units in the country, one of which is in the Department of Defense. Co-investigator in studies evaluating interventions to improve the use of peri-operative prophylactic antibiotics and to decrease sharps injuries in health care workers.

Selected Publications:
5. Ribner BS. An effective educational program to reduce the frequency of needle recapping. Infect Control Hosp Epidemiol 1990; 11:635-638.


Other Publications/Book Chapters:


David Rimland, MD

Education:
- Medical School: Emory University School of Medicine
- Residency: Barnes Hospital, St. Louis, Missouri
- Fellowship: Emory University School of Medicine

Current Appointment:
- Professor of Medicine
- Chief, Infectious Diseases, VA Medical Center
- Director, HIV Program, VA Medical Center

Research and Other Academic Interests:
In the initial part of my career my research centered on host defenses in alcoholics and the epidemiology of nosocomial infections. My research focus in the last 20 years has been on the epidemiology and treatment of opportunistic infections in AIDS and the use of antiretroviral therapy.

Selected Publications:


92


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**Nadine G. Rouphael, MD**

**Education:**
- Medical School: Saint Joseph University- Lebanon
- Masters in Health Economics: Jean Moulin, Lyon 3- France
- Residency: Emory University School of Medicine
- Fellowship: Emory University School of Medicine

**Current Appointment:**
- Instructor
- Staff Physician, Emory Crawford Long Hospital
- Co-PI, VTEU, The Hope Clinic of the Emory Vaccine Center
- Guest Researcher, Centers for Disease Control and Prevention

**Research and other Academic Interests:**

My laboratory research interests concern immunology of vaccines of bacterial pathogens such as *Neisseria meningitidis, Streptococcus pneumoniae* and *Haemophilus influenzae*. I am currently working on the evaluation of innate immunity in meningococcal and pneumococcal vaccines and the role of memory B cells in elderly receiving pneumococcal vaccines.
My clinical research interest is in vaccine evaluation. I am a co-PI at the Emory VTEU where many new vaccines are being investigated. I am also part of a collaborative work between Emory University and the Meningitis Vaccine Project in Africa.

Selected Publications:


Sarah Satola, PhD

Education:
Undergraduate: B.A., Biology, Goucher College
Graduate: Ph.D., Emory University Department of Microbiology and Immunology

Current Titles and Affiliations:
Senior Associate of Medicine, Director EIP Laboratory, Georgia Emerging Infections Program, Atlanta, GA

Research and other Academic Interests:
1. Genetics and pathogenesis of Haemophilus influenzae
2. Examination of the role of pili in mucosal attachment and pathogenesis.
3. Population-based surveillance and epidemiology of bacterial meningitis pathogens including H. influenzae, N. meningitidis, groups A and B Streptococcus, S. pneumoniae
4. Genetic characterization of non-encapsulated H. influenzae for potential vaccine development
5. MRSA surveillance, molecular epidemiology and vancomycin MIC-creep.

Selected Publications:


Arjun Srinivasan, MD

Education:
Medical School: Vanderbilt University School of Medicine
Residency: Sir William Osler Internal Medicine Service, Johns Hopkins University Hospital
Fellowship: Johns Hopkins University Hospital

Current Appointment: Assistant Professor of Medicine
Team Leader, Response Team
Division of Healthcare Quality Promotion, CDC
Commander, US Public Health Service Commissioned Corps

Research and Other Academic Interests:
Epidemiology of healthcare associated infections with an emphasis on investigations of outbreaks related to healthcare delivery. Antimicrobial resistance and multi-drug resistant organisms with an emphasis on the epidemiology of antibiotic resistant gram negative bacteria and on reducing the incidence of antimicrobial resistance in healthcare settings.

Selected Publications


James P. Steinberg, MD, FACP

Education:
- Medical School: University of Nebraska College of Medicine
- Residency: Emory University School of Medicine
- Fellowship: Northwestern University Medical School

Current Appointments:
- Professor of Medicine
- Chief Medical Officer, Emory Crawford Long Hospital
- Hospital Epidemiologist, Crawford Long Hospital
- Staff Physician: Emory Crawford Long, Emory University Hospital, Grady Memorial Hospital

Research and Other Academic Interests:
Research interests include 1) Epidemiology and prevention of healthcare associated infections including surgical site infections and intravascular device-related infections, 2) Bloodstream infections, 3) Antibiotic use and antibiotic resistance, 4) Staphylococcus aureus infections, 5) healthcare worker safety.

Selected Publications:


Other Publications/Book Chapters:


Nimalie D. Stone, MD

Education:
Medical School: University of Kentucky
Internal Medicine Residency: Johns Hopkins University School of Medicine
Fellowship: Emory University School of Medicine

Current Appointment:
Assistant Professor of Medicine
Director of Antimicrobial Infections and Wesley Woods Center Epidemiologist
Staff Physician, Wesley Woods Hospital and Emory University Hospital, Atlanta

Research and other Academic Interests:
My research interests are in understanding the epidemiology and microbiology of infections in the elderly, with a specific focus on antibiotic resistant organisms. My current research projects are on methicillin-resistant Staphylococcus aureus (MRSA) colonization, transmission and clinical outcomes in the long-term care setting. My laboratory collaborations also enable me to
study the molecular epidemiology of MRSA transmission using techniques such as pulse-field gel electrophoresis.

As part of my clinical work I am the director of antimicrobial management and campus epidemiologist for Wesley Woods, a multi-center campus with a focus in geriatric care. I am developing quality improvement initiatives to improve antibiotic utilization for the elderly in both the acute and long-term care settings.

Selected Publications:

Naasha J. Talati, MD

Education:
Medical School: The Aga Khan University
Internal Medicine Residency: Duke University Medical Center
Fellowship: Emory University School of Medicine

Current Appointment: Instructor, Division of Infectious Disease

Research and other Academic Interests:
My main area of interest in Infectious Diseases is in Tuberculosis. I am interested more specifically in TB/HIV co-infection, the development of new diagnostic tests for latent and active TB and research in developing countries.

I have worked on projects that analyze the utility of Interferon Gamma Release Assays in the diagnosis of Latent Tuberculosis Infection in the US. Currently I am conducting a study in Zambia, (funded by the Global Health Institution at Emory) that is evaluating the utility of Interferon Gamma Release Assays in diagnosis of Latent Tuberculosis Infection among HIV positive individuals.

Selected Recent Publications:


Yih-Ling Tzeng, PhD

Education:
- BS: Chemistry, National Taiwan University, Taipei, Taiwan
- MS: Organic Chemistry, National Taiwan University, Taipei, Taiwan
- PhD: Bioorganic Chemistry, The University of Chicago

Current Appointment:
Assistant Professor of Medicine

Research and Academic Interests:
My laboratory studies molecular mechanisms of *N. meningitidis* pathogenesis and the signal transduction pathways by which meningococci sense and interact with the host. Specifically, much of the lab focuses on meningococcal regulation of capsular polysaccharides, stress response and iron uptake by a novel two-component regulatory system.

Selected Publications:


David S. Weiss, PhD

Education:
Undergraduate: Brandeis University, 1998, B.S.
Graduate: New York University, 2004, Ph.D.
Postdoctoral: Stanford University, 2007

Current Appointment: Assistant Professor of Medicine

Research Interests:
Our lab is interested in understanding mechanisms of bacterial pathogenesis and the host’s response to infection. We are currently focusing on the Gram-negative bacterial pathogen Francisella tularensis which causes tularemia. Critical to Francisella’s pathogenesis are its ability to replicate within macrophages, the primary niche for replication in vivo, and to subvert the host immune system. We recently identified a novel Francisella gene that is required for bacterial virulence in vivo and suppresses macrophage activation of host defense pathways. Current experiments are focused on how this novel virulence factor functions at the molecular level. Future work will elucidate the roles of other novel Francisella virulence factors we have identified, as well as identifying the host defense pathways that they modulate. Our work will allow us to gain insights into host-pathogen interactions, while leading us towards an F. tularensis vaccine and the identification of critical targets for therapeutics to treat tularemia.

Selected Publications:


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**Kimberly A. Workowski, MD**

**Education:**
University of South Florida

**Residency:**
University of Chicago

**Fellowship:**
University of Washington

**Current Appointment:**
Professor of Medicine
Staff Physician: Crawford Long Hospital
Staff Physician: Grady Memorial Hospital
Chief, Guidelines Unit, Epidemiology & Surveillance Branch, Division of Sexually Transmitted Diseases Prevention, CDC

**Research and Academic Interests:**
Sexually transmitted diseases; Hepatitis C; HIV/AIDS; Vaginal microbicides; STD guidelines development; vaccine clinical trials.

**Selected Publications:**


Susu Zughaier, PhD

Education:
BSc: Yarmouk University, Irbid, Jordan
MSc: University of Wales College of Medicine, UK
PhD: University of Wales College of Medicine, UK

Current Appointment: Senior Associate of Medicine

Research and Academic Interests:
Host-pathogen (namely Neisseria meningitidis) interactions, Toll-like receptor-mediated macrophage activation / signaling, ligand structure-function and adjuvant mechanism are the core of my studies. My basic science research interests focus on macrophage and dendritic cells innate immune responses (oxidative burst, cytokines, chemokines and cationic peptides release) to lipopolysaccharides and capsular polysaccharide of invading pathogens. Other research interests include macrolide resistance in Streptococcus pneumoniae before and after the introduction of the pneumococcal conjugate vaccine in a population-based surveillance.

Selected Publications:


4. Zughaier, SM, Ryley HC, Jackson SK. LPS from Burkholderia cepacia is more active than LPS from Pseudomonas aeruginosa and Stenotrophomonas maltophilia in stimulating TNFα from


C. CLINICAL (VOLUNTEER) FACULTY

The teaching and research activities of the Division are also supported by our clinical (volunteer) faculty. Many of these individuals are located at the Centers for Disease Control and Prevention (CDC). The CDC is the primary federal agency engaged in infectious disease control and prevention strategies. The Division of Infectious
Diseases and the CDC maintain a close collaborative affiliation for teaching, research, seminars, conferences and library facilities.

Paul Arguin, MD  
Sharon Bloom, MD  
William Bower, MD  
Philip S. Brachman, MD  
John Brooks, MD  
Kenneth G. Castro, MD  
J. Peter Cegielski, MD, MPH  
Martin Cetron, MD  
Louisa E. Chapman, MD  
Thomas Chiller, MD  
Terence L. Chorba, MD  
Mitchell L. Cohen, MD  
John M. Douglas, Jr., MD  
D. Peter Drotman, MD  
Tedd Ellerbrock, MD  
Scott Filler, MD  
Anthony Fiore, MD  
Scott Fridkin, MD  
Julie Gerberding, MD  
Susan Goldstein, MD  
Lisa Grohskopf, MD, PhD  
Shannon Hader, MD  
Rana Hajjeh, MD  
Theresa A. Harrington, MD, MPH  
James Hefflinger, MD  
Timothy Holtz, MD  
Bryan Kapella, MD  
Jonathan E. Kaplan, MD  
Rima Khambaz, MD  
Matthew Kuehnert, MD  
Lauri Markowitz, MD  
Barbara Marston, MD  
Catherine A. McLean, MD  
Juliette Morgan, MD  
Mathew Moore, MD  
Pragna Patel, MD  
Philip J. Peters, MD  
Robert W. Pinner, MD  
Drew Posey, MD  
Christie Reed, MD  
Anne Schuchat, MD  
Craig N. Shapiro, MD  
Patricia Simone, MD  
Thomas J. Spira, MD  
Steven L. Solomon, MD  
Philip R. Spradling, MD  
Arjun Srinivasan, MD  
David L. Svedlow, MD  
Melissa Tobin-D’Angelo, MD  
Andrew A. Vernon, MD  
Charles Vitek, MD  
John Ward, MD  
Michele Weinberg, MD, PhD  
Melinda Wharton, MD  
Cynthia G. Whitney, MD, MPH

D. ASSOCIATED AND ADJUNCT FACULTY

The Division also maintains strong collaborative ties with Emory's Department of Microbiology and Immunology, Department of Pathology and Laboratory Medicine, the Graduate Programs in Microbiology and Molecular Genetics and in Immunology and Molecular Pathogenesis, the Emory's Rollins School of Public Health, the Department of International Health and the Carter Center for International Studies. Collaborators at these sites include:

Rafi Ahmed, PhD  
Richard Compans, PhD  
Leslie Real, PhD  
Susan Allen, MD, MPH  
James Curran, MD, MPH  
John C. Salerno, PhD  
Ruth Berkelman, MD  
Bruce Levin, PhD  
June Scott, PhD  
John Boring, PhD  
Christine Moe, PhD  
Richard Rothenberg, MD  
John Bryan, MD  
Charles Moran, PhD  
William M. Shafer, PhD

A separate pediatric infectious disease group also interacts with the Division in joint conferences, teaching, and research activities. Investigative collaborators in the pediatric infectious diseases group include Division Director Paul Spearman, MD, Harry Keyserling, MD, Sheryl Henderson, MD, PhD, Joseph Hilinski, MD, and Andi Shane, MD.

E. CURRENT TRAINEES

First Year Fellows

108
Ameeta Kalokhe, MD – Wayne State University School of Medicine; Residency: Emory University, Atlanta, GA

Krutika Kuppalli, MD – Virginia Commonwealth University School of Medicine; Residency: Emory University, Atlanta, GA

Daniel Livorsi, MD – University of Illinois School of Medicine; Residency: Baylor University, Houston, TX

Anandi Sheth, MD – Johns Hopkins University School of Medicine; Residency: Johns Hopkins University, Baltimore, MD

Zandraetta Tims-Cook, MD – Weill Cornell Medical College; Residency: Vanderbilt University, Nashville, TN

Second Year Fellows

Natasha S. Hochberg, MD, MPH – Case Western Reserve School of Medicine; Residency: Brigham and Women's Hospital, Boston, MA.

Colleen F. Kelley, MD, MPH – Emory University School of Medicine; Residency: UC-San Francisco, San Francisco, CA.

Russell R. Kempker, MD – University of Miami School of Medicine; Residency: Emory University School of Medicine, Atlanta, GA.

Jacek Skarbinski, MD – Stanford University School of Medicine; Residency: UC-San Francisco, San Francisco, CA.

Nicholas Vogenthaler, MD, MPH – UC-San Francisco School of Medicine; Residency: UC-San Francisco, San Francisco, CA

Third Year Fellows

Jodie A. Dionne-Odom, MD – Dartmouth Medical School, Hanover, NH; Residency and Chief Residency: New York University, New York, NY

Alicia Hidron, MD – Instituto de Ciencias de la Salud, CES, Medellin, Colombia; Residency and Chief Residency: Emory University School of Medicine, Atlanta, GA.

Colleen Kraft, MD – Indiana University School of Medicine; Residency: Emory University School of Medicine, Atlanta, GA; Chief Residency: Atlanta VA Medical Center

Aneesh Mehta, MD – University of Oklahoma College of Medicine, Oklahoma City, OK; Residency: Emory University School of Medicine, Atlanta, GA

Alexandra (Sasha) Yamshchikov, MD – University of Virginia School of Medicine, Charlottesville, VA; Residency: Yale University New Haven Hospital, New Haven, CT

GRADUATES:

2008 Jesse T. Jacob, MD – Assistant Professor of Medicine, Division of Infectious Diseases, Emory University School of Medicine, Atlanta, GA

Seema Jain, MD – Medical Epidemiologist, Division of Influenza, Centers for Disease Control and Prevention
Nadine G. Rouphael, MD – Instructor in Medicine, Division of Infectious Diseases, Emory University School of Medicine, Atlanta, GA
Naasha Talati, MD - Instructor in Medicine, Division of Infectious Diseases, Emory University School of Medicine, Atlanta, GA

2007 Nimalie Stone, MD – Assistant Professor of Medicine, Division of Infectious Diseases, Emory University School of Medicine, Atlanta, GA

2006 Laura Broyles, MD – Assistant Professor of Medicine, Division of Infectious Diseases, Emory University School of Medicine, Atlanta, GA
Deblina Datta, MD – Medical Epidemiologist, Division of STD Prevention, Centers for Disease Control and Prevention, Atlanta, GA
Neel Gandhi, MD – Assistant Professor of Medicine, Albert Einstein College of Medicine, New York, NY
Deborah Nicolls, MD – Infectious Diseases, New Orleans, LA.
Melissa Osborn, MD - Assistant Professor of Medicine, Division of Infectious Diseases, Emory University School of Medicine, Atlanta, GA
Philip Peters, MD – EIS Fellow, Centers for Disease Control and Prevention, Atlanta, GA
Zachary Rubin, MD – Assistant Professor of Medicine, Division of Infectious Diseases, David Geffen- UCLA School of Medicine, Los Angeles, CA.

2005 Werner Albrich, MD – Attending Physician, University of Berne, Berne, Switzerland.
Adam M. Bressler, MD – Private Practice, Atlanta, GA
Eileen Farnon, MD – Medical Epidemiologist, Division of Viral and Rickettsial Diseases, Centers for Disease Control and Prevention, Atlanta, GA
Bill Kapogiannis, MD – Director, NIH Adolescent HIV Medicine Trials Network, Bethesda, MD
Abeer A. Moanna, MD – Senior Associate of Medicine, Division of Infectious Diseases, Emory University School of Medicine, Atlanta, GA

2004 Bernard Camins, MD – Assistant Professor of Medicine, Division of Infectious Diseases, Washington University School of Medicine, St. Louis, MO
Peter M. Dull, MD – Head of Development of Meningococcal Conjugate Vaccines, Novartis Vaccines and Diagnostics, Emeryville, CA
Henry T. Radziewicz, MD – Assistant Professor of Medicine, Division of Infectious Diseases, Emory University School of Medicine, Atlanta, GA
Shanta M. Zimmer, MD – Assistant Professor of Medicine, Division of General Internal Medicine, University of Pittsburgh Medical Center, Pittsburgh, PA.

2003 Carlos DiazGranados, MD - Assistant Professor of Medicine, Division of Infectious Diseases, Emory University, Atlanta, GA
Shannon Hader, MD, MPH – Director, HIV/AIDS Administration, Washington, DC Department of Health
Robin Hampton, MD, PhD - Private Practice, Susquehanna Health System, Williamsport, PA
Alexander Kessler, MD – Private Practice, Susquehanna Health System, Acworth, GA
Michael C. Thigpen, MD – Medical Epidemiologist Epidemiology Branch, Division of HIV/AIDS, Centers for Disease Control and Prevention, Atlanta, GA.

2002 Wayne Duffus, MD, PhD – Medical Director, HIV and STD Medicine, South Carolina Department of Health and Environmental Control; Clinical Assistant Professor, Division of Infectious Diseases, University of South Carolina School of Medicine, Columbia, SC
Tamara Fisk, MD, – (deceased 3/05) – formerly, Assistant Professor of Medicine, Division of Infectious Diseases, Emory University School of Medicine, Atlanta, GA
Melissa Tobin-D’Angelo, MD, MPH – Medical Epidemiologist, Georgia DHR/Division of Public Health, Atlanta, GA

2001 William Blake, MD – Private Practice, Atlanta, GA
Carlos Franco-Paredes, MD – Assistant Professor of Medicine, Division of Infectious Diseases, Emory University School of Medicine, Atlanta, GA
Mark D. King, MD – Private Practice, Boulder, CO
Michael Leonard, Jr, MD - Associate Professor of Medicine, Division of Infectious Diseases, Emory University School of Medicine, Atlanta, GA
Charles Vitek, MD, MPH – Director, Global AIDS Program in Russia, CDC, Moscow, Russia

Michael Martin, MD, MPH – Chief, HIV Vaccine and Clinical Research Section, Thai MOPH-U.S. CDC Collaboration, Bangkok, Thailand
Margaret Williamson, MD – Private Practice, Atlanta, GA

Helmut Albrecht, MD- Professor of Medicine and Chief, Division of Infectious Diseases, University of South Carolina School of Medicine, Columbia, SC
Matthew J. Kuehnert, MD- Medical Epidemiologist, Associate Director for Blood Safety, Division of Healthcare Quality Promotion, NCID, CDC, Atlanta, GA
Ronald Reisler, MD- USAMRIID, Division of Medicine, Special Immunization Program, Fort Detrick, MD

Henry Baffoe-Bonnie, MD – Private Practice of Infectious Diseases, Lakeland, FL
Ben Barnett, MD - Associate Professor of Medicine, Division of Infectious Diseases, University of Texas at Houston
William Bower, MD – Medical Epidemiologist, Division of Viral Hepatitis/Epidemiology Branch, CDC, Atlanta, GA
Richard Hengel, MD – Private Practice, Atlanta, GA
Jyoti Somani, MD – Private Practice, Atlanta, GA
Charles Wells, MD – Medical Director, TB Products Unit, Otsuka Pharmaceutical Development and Commercialization, Rockville, Maryland (formerly Director, International Research Activities, Division of Tuberculosis Elimination, CDC, Atlanta, GA)

Sri Edupuganti, MD – Assistant Professor of Medicine, Division of Infectious Diseases, Emory University School of Medicine, Atlanta, GA
Christine Zurawski, MD - Private Practice of Infectious Diseases, Atlanta GA

Kathryn E. Arnold, MD - Chief, Medical Consultation & Liaison Activity Epidemiology Section, Division of Public Health, Georgia Department of Human, Atlanta, GA
Sue Anne Brenner, MD - Assistant Professor, Division of Family and Preventative Medicine, Emory University, Atlanta, GA
Jay C. Butler, MD - Chief, Arctic Investigations Branch, CDC, Anchorage, AK
Rafael A. Caputi, MD - Chief, Infectious Diseases, SOLCA Hospital, Guayaquil, Ecuador
Juliette Morgan, MD – Medical Epidemiologist, Emerging Pathogens, CDC, Atlanta, GA
Nigel J. Raymond, MD - Hospital Practice and Clinical Senior Lecturer, Infectious Diseases, University of Otago, Wellington, New Zealand

Susan McLellan, MD – Associate Professor of Medicine, Division of Infectious Diseases, Tulane University School of Medicine, New Orleans, LA

Jonathan Krohn, MD - Private Practice, East Setauket, NY
Barbara Marston, MD - Technical Officer, HIV Care and Treatment Team, Global AIDS Program, Centers for Disease Control and Prevention, Atlanta, GA
R. Scott Stienecker, MD – Private Practice of Infectious Diseases; Epidemiologist, St. Ritas Medical Center (SCCI) Inc., Lima, OH

Rana Ahmad Hajjeh, MD - Director, Hib Initiative, CDC, Atlanta, GA
Susan M. Ray, MD – Associate Professor of Medicine, Division Infectious Diseases, Emory University School of Medicine; Associate Hospital Epidemiologist, Grady Memorial Hospital,
1992  
**Henry M. Blumberg, MD** - Professor of Medicine and Epidemiology, Program Director, Division of Infectious Diseases, Emory University School of Medicine, Program Director, Research Education, Training and Career Development, Atlanta Clinical and Translational Science Institute; Hospital Epidemiologist, Grady Memorial Hospital, Atlanta, GA  
**Philip S. Brachman, MD** - Private Practice of Infectious Diseases; Clinical Faculty, Division of Infectious Diseases, Emory University School of Medicine, Atlanta, GA  
**Molly E. Eaton, MD** - Assistant Professor of Medicine, Division of Infectious Diseases, Emory University School of Medicine, Atlanta, GA  
**Steven M. Gordon, MD** - Professor of Medicine and Chief, Infectious Diseases, Cleveland Clinic Foundation, Cleveland, OH  
**Joseph A. Havlik, MD** - Private Practice of Infectious Diseases Atlanta, GA  
**Lincoln P. Miller, MD** - Private Practice, Newark, NJ  
**Thomas R. Navin, MD** - Branch Chief, Surveillance Branch, Division of Tuberculosis Elimination, CDC; Clinical Faculty, Division of Infectious Diseases, Emory University School of Medicine, Atlanta, GA

1991  
**Clifford J. Gunthel, MD** - Assistant Professor of Medicine, Division of Infectious Diseases, Emory University School of Medicine, Atlanta, GA  
**Edward F. Hendershot, MD** - Assistant Professor of Medicine, Duke University, Durham, NC

1990  
**Paul D. Martin, MD** - Private Practice of Infectious Diseases, Atlanta, GA  
**Robert W. Yancey, MD** - Private Practice of Infectious Diseases, Gainesville, FL

1989  
**Kenneth G. Castro, MD** - Director, Division of Tuberculosis Elimination, National Center for HIV, STD and TB Prevention, CDC; Assistant Surgeon General, U.S. Public Health Service; Clinical Faculty, Division of Infectious Diseases, Emory University School of Medicine, Atlanta, GA  
**Stuart W. Haber, MD** - Private Practice of Infectious Diseases, Westchester County, NY  
**Lee H. Harrison, MD** - Professor of Epidemiology and Medicine; Director, Public Health Infectious Diseases Laboratory, University of Pittsburgh School of Medicine, Pittsburgh, PA

1988  
**Michael L. Butera, MD** - Private Practice of Infectious Diseases and Internal Medicine, San Diego, CA  
**Carlos C. del Rio, MD** - Professor of Medicine, Division of Infectious Diseases, Emory University School of Medicine, and Chief of Medicine, Grady Memorial Hospital, Atlanta, GA  
**Carmelo M. Licitra, MD** - Private Practice of Infectious Diseases, Orlando, FL  
**Robert W. Pinner, MD** - Director, Office of Surveillance, NCID, CDC; Clinical Faculty, Infectious Diseases, Emory University School of Medicine, Atlanta, GA  
**Jonathan M. Zenilman, MD** - Professor of Medicine, Infectious Diseases, Johns Hopkins University School of Medicine, Baltimore, MD

1987  
**John M. Maloney, III, MD** - Private Practice of Infectious Diseases, Atlanta, GA

1986  
**William A. Alexander, MD** - Associate Professor, Morehouse School of Medicine, Atlanta, GA  
**John F. Campbell, MD** - Chief of Infectious Diseases, Moses Cone Hospital, Greensboro, NC  
**John W. Holman, MD** - Private Practice of Internal Medicine and Infectious Diseases, Greenwood, SC  
**Alan J. Morrison, MD** - Private Practice, Managing Partner of Infectious Diseases, Annandale, VA; Hospital Epidemiologist, Inova Health System

1985  
**John C. Durham, MD** - Consultant, Medical Software Development, Atlanta, GA  
**Monica M. Farley, MD** - Professor of Medicine and Associate Director, Division of Infectious Diseases, Emory University School of Medicine, Atlanta, GA
Eimear M. Kennedy, MD (deceased) - Private Practice of Internal Medicine and Infectious Diseases, Atlanta, GA

1984 Peter Katona, MD – Associate Professor of Medicine, UCLA School of Medicine, Los Angeles, CA
Phyllis E. Kozarsky, MD - Professor of Medicine, Division of Infectious Diseases, Emory University School of Medicine; Director, Travel Well Clinic, Atlanta, GA; Chief of Traveler’s Health, CDC
Bryan P. Simmons, MD – Clinical Professor of Medicine and Medical Director Infection Control, Methodist University Hospitals, Memphis, TN
Thomas H. Steinberg, MD - Professor of Medicine, Division of Infectious Diseases, Washington University School of Medicine; St. Louis, MO

1983 Robin H. Dretler, MD - Private Practice of Internal Medicine and Infectious Diseases, Decatur, GA; Clinical Assistant Professor of Medicine, Infectious Diseases, Emory University School of Medicine, Atlanta, GA

1982 Don C. Bartley, MD - Private Practice of Internal Medicine and Infectious Diseases, Jacksonville, FL
Rafael L. Jurado, MD - Associate Professor of Medicine, Division of Infectious Diseases, Emory University School of Medicine, Atlanta, GA
Richard C. Rose, III, MD - Private Practice of Internal Medicine and Infectious Diseases, Knoxville, TN

1981 Don T. Allegra, MD - Private Practice of Internal Medicine and Infectious Diseases, Randolph, NJ
Richard Prokesch, MD Physician, Private Practice of ID and Internal Medicine, Board Member, Out-patient Intravenous Antibiotic Registry, Chairman, P&T Infection Control Committees, South Fulton Med Center and Southern Regional Medical Center, Chairman, Southern Regional Health System, Atlanta, GA

1980 Joseph Brewer, MD - Private Practice of Internal Medicine and Infectious Diseases, Kansas City, MO
Samuel Webster, MD - Private Practice of Internal Medicine and Infectious Diseases, Atlanta, GA

1979 John Drummond, MD - Private Practice of Internal Medicine and Infectious Diseases, Atlanta, GA
J. Boyd Francis, MD – deceased (6/99); formerly Professor of Medicine, University of Virginia School of Medicine, Charlottesville, VA
Daniel Rawson, MD - Private Practice of Internal Medicine and Infectious Diseases, Salt Lake City, UT

1978 William Corwin, MD - Associate Medical Director, Harvard Community Health Plan/NE, Providence, RI
Patricia DuBose, MD - Private Practice of Internal Medicine and Infectious Diseases, Atlanta, GA

1977 Norman F. Jacobs, Jr, MD - Private Practice of Internal Medicine and Infectious Diseases; Hospital Epidemiologist, DeKalb Medical Center, Atlanta, GA
David Rimland, MD - Professor of Medicine, Division of Infectious Diseases, Emory University School of Medicine; Chief, Infectious Diseases, VAMC, Atlanta, GA, Director of HIV Programs, VAMC, Atlanta, GA

1976 David Lowe, MD - Private Practice of Internal Medicine and Infectious Diseases, Providence, RI
David Schlossberg, MD – Director, TB Clinic, Philadelphia Department of Health, Professor of Medicine, Temple University School of Medicine,

John Walker, MD - Private Practice of Internal Medicine and Infectious Diseases, Atlanta, GA

1975 Sumner Thompson, III, MD - Deceased (11/95), formerly Professor of Medicine (Division of Infectious Diseases), Emory University School of Medicine; Director of AIDS Programs at Grady Health System, Atlanta, GA

Fernando Zacarias, MD - Epidemiologist, Pan American Health Organization (PAHO)

1974 Dorothy Karandianias, MD

Carl A. Perlino, MD – Emeritus Associate Professor of Medicine, Division Infectious Diseases, Emory University School of Medicine, Atlanta, GA

1973 Robert Cantey, MD - Professor of Medicine and Director, Division of Infectious Diseases, Medical University of South Carolina, Charleston, SC

1972 Victor del Bene, MD - Professor of Medicine, Medical University of South Carolina, Charleston, SC

1970 Richard E. DuBois, MD - Private Practice of Internal Medicine and Infectious Diseases, Atlanta, GA

Allen H. Johnson, MD - Professor of Medicine, Medical University of South Carolina, Charleston, SC

Stephen Schwarzmann, MD – Emeritus Professor of Medicine, Division of Infectious Diseases, Emory University School of Medicine, Atlanta, GA

1968 Charles Hamilton, MD