

HECTOR F. BONILLA, MD

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WORK EXPERIENCE, ACADEMICAL AND CLINICAL APPOINTMENTS

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| Stanford University Medical Center Director of ME/CFS | Palo Alto, CA 7/2017-present |
| Stanford University Medical Center Assistant Professor of Medicine Division of Infectious Diseases and Geographic Medicine Stanford University School of Medicine | Palo Alto, CA 2/2017-present |
| Stanford University Participation Standardized Patient Exam SPE | Palo Alto, CA Current |
| Seton Medical Center Infectious Diseases Consultant San Mateo Verity Medical Foundation | Daly City, CA 10/2016-2/2017 |
| Diablo Infectious Diseases Infectious Disease Clinical Practice | Castro Valley, CA 07/ 2015-10/2016 |
| ImmunoScience. Inc. Researcher, Infectious Diseases Physician Therapeutic HIV vaccine | Pleasanton, CA 07/2014-07/2015 |
| University of Pittsburgh Department of Medicine UPMC Mercy, Division of Infectious Diseases Clinical Assistant Professor | Pittsburgh, PA 09/2011- 06/2014 |
| University of Pittsburgh Department of Medicine UPMC Mercy, Division of Infectious Diseases Director of Education Medicine Residency Program | Pittsburgh, PA 09/2011-06/2014 |
| Summa Health System, Department of Medicine Infectious Diseases Physician/HIV | Akron, OH 09/2001-08/2011 |
| Northeast Ohio Medical University Assistant Professor/Infectious Diseases | Rootstown, OH |

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| Summa Health System HIV Clinic/CARE Center Medical Director | 01/2006-01/2008 |
| Summa Health System Organ Transplant Program Medical Director Infectious Diseases | 07/2004-06/2008 |
| LSU-Washington, Saint Tammany Medical Center Infectious Diseases Physician/HIV/primary care | Bogalusa, LA 07/1998-08/2001 |
| LSU-Earl K. Long Memorial Hospital Infectious Diseases Physician/HIV/primary care | Baton Rouge, LA 07/1996-06/1998 |

EDUCATIONAL BACKGROUND

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| University of Michigan Infectious Diseases Fellow | Ann Arbor, MI 07/1994-06/1996 |
| Sinai Hospital of Detroit Internal Medicine Residency | Detroit, MI 07/1992-06/1994 |
| Sinai Hospital of Detroit Internal Medicine Internship | Detroit, MI 07/1991-06/1992 |
| Sinai Hospital of Detroit Clinical Research | Detroit, MI 07/1990-06/1991 |
| Henry Ford Hospital, Nephrology Department Visiting Physician | Detroit, MI 07/1989-06/1990 |
| Universidad del Valle Internal Medicine Residency/Chief Medical Resident | Cali, Colombia 1986-1988 |
| Universidad del Valle Medical School | Cali, Colombia 10/1976- 10/1983 |
| Mario Correa Renjifo Hospital Internal Medicine Primary Care | Cali, Colombia 10/1983-02/1985 |
| Universidad del Valle Internal Medicine, Residency | Cali, Colombia 04/1985-05/1998 |
| Evaristo García Hospital/ private practice Internal Medicine, Primary Care | Cali, Colombia 06/1988-06/1989 |

LICENSURE & CERTIFICATIONS

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| Medical License, California | 2015-present |
| Medical License, Pennsylvania | 2011-2014 |
| Medical License, Ohio | 2001-2012 |
| Infectious Diseases Board Certification | 1996-present |
| Internal Medicine Board Certification | 1995- present |

PROFESSIONAL MEMBERSHIPS

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| Infectious Diseases Society of America (IDSA) | 1995-present |
| American Society of Microbiology (ASM) | 1997-present |
| International Collaboration on Endocarditis (ICE) | 2010-present |

MAJOR RESEARCH INTERESTS

- ME/CFS
 - Clinical aspects
 - Biomarkers
 - Pathogenesis
- HIV Clinical
- Vaccines
- Pleotropic effect of statins drug on HCV (cirrhosis and Hepatocellular carcinoma)
- Bacterial Resistance; *Staphylococcus aureus*:
 - Linezolid resistant CFR (+) strains of *Staphylococcus Epidermis* and MRSA.
 - *Staphylococcus aureus* bacteremia, epidemiology and clinical outcomes.
- *Clostridium difficile* infection. *C. difficile* clinical outcomes.
- The impact antibiotics on the production of inflammatory cytokine *in vitro* whole blood model.
- Glucan immune-modulation after Cardiac Bypass Surgery Graft.

CLINICAL TRIALS

HIV Cleveland Immune Failures Project in cooperation with Case Western Reserve, University hospital in Cleveland, Cleveland Clinic Foundation and Summa Health System, 2010.

Phase 3, Open-Label, Randomized Study of the Antiviral Activity, Safety, and Tolerability of Intravenous Peramivir in Adult and Adolescent Hospitalized Subjects with Confirmed or Suspected Influenza Infection. Protocol NO. BCX 1812-303. BioCryst Pharmaceuticals, Inc., 2010.

Phase 2 Randomized Study Investigating the Safety, Efficacy and Pharmacokinetics of Daptomycin 6 mg/kg and 8 mg/kg versus Comparator (Vancomycin or Teicoplanin) in the Treatment of Subjects Undergoing Surgical Standard of Care for Osteomyelitis Associated with an Infected Prosthesis Hip or Knee Joint Caused by Methicillin Resistant *Staphylococcus aureus* and/or Coagulase-Negative Staphylococci (DAP-OST-06-02), 2009.

A Randomized Clinical Trial Comparing Two Management Strategies for Treatment of Neutropenia and Anemia Associated with Pegylated Interferon plus Ribavirin Treatment of Compensated Chronic Hepatitis C in Adult Subjects Infected with HIV.

A Randomized, Multicenter, Double Blinded, Phase IV Study Comparing the Safety and Efficacy of Pegasys 180 µg plus Copegus 1000/1200 mg to the Currently Approved Combination of Pegasys 180 µg plus Copegus 800 mg in Interferon-naïve Patients with Chronic Hepatitis C Genotype 1 Virus Infection Coinfected with Human Immunodeficiency Virus (HIV-1).

SELECTED RESEARCH GRANTS

BIOHUB research grant proposal: Muscle, Mitochondria, and Proteomics in Myalgic Encephalomyelitis/Chronic Fatigue Syndrome (ME/CFS) (pending revision Summer 2018)

Influence of Ceftaroline vs. Ceftriaxone in the production of inflammatory cytokines (IL-1 β , IL-6, IL-7 and TNF α) by *Streptococcus Pneumoniae* in human whole blood. Contract agreement. Forrest Co. UPMC, 2014

Comparison of Trek aerobic blood culture media vs. Bactec aerobic resin blood culture media for the recovery of *S. aureus* from patients receiving anti-staphylococcal therapy at the time of blood collection. BD Diagnostics, 2009

Diagnosis of septic arthritis using 16S rRNA PCR. Summa Foundation, 2009

SELECTED PUBLICATIONS

Ryan K. Shields, Rohit Anand, Lloyd G. Clarke, Julie A. Paronish, Matthew Weirich, Hanna Perone, Jake Kieserman, Henry Freedy, Christina Andrzejewski, **Hector Bonilla**. Defining the incidence and risk factors of colistin-induced acute kidney injury by KDIGO criteria. *PLoS One*. 2017 Mar 7;12(3).

Simon TG, **Bonilla H**, Yam P, Chung RT, Butt A. Atorvastatin and fluvastatin are associated with dose-dependent reduction in cirrhosis and hepatocellular carcinoma, among patients with hepatitis C virus: Results from ERCHIVES. *Hepatology*. 2016;1:47-57.

Manandhar S, Pai G, Gidwani H, Nazim S, Buehrle D, Shutt KA, **Bonilla H**. Does *Staphylococcus aureus* bacteriuria predict clinical outcomes in patients with bacteremia? Analysis of 274 patients with *Staphylococcus aureus* blood stream infection. *Infectious Diseases in Clinical Practice* 2016;3:151-154.

Butt AA, Yan P, **Bonilla H**, Abou-Samra AB, Shaikh OS, Simon TG, Chung RT, Rogal SS; ERCHIVES (Electronically Retrieved Cohort of HCV Infected Veterans) study team. Effect of addition of statins to antiviral therapy in HCV infected persons: Results from ERCHIVES. *Hepatology*. 2015;2:365-74.

Clanton J, Fawley R, Haller N, Daley T, Porter J, Paranjape C, **Bonilla H**. *Patience is a virtue: an argument for delayed surgical intervention in fulminant Clostridium difficile colitis*. *Am Surg*. 2014; 80: 614-9.

Eckard AR, Leong T, Avery A, Castillo MD, **Bonilla H**, Storer N, Labbato D, Khaitan A, Tangpricha V, McComsey GA. *High Prevalence of Vitamin D Deficiency in HIV-Infected and HIV-Uninfected Pregnant Women*. *AIDS Res Hum Retroviruses*. 2013, Sep; 29: 1224-8.

Mendes RE, Deshpande LM, **Bonilla HF**, Schwarz S, Huband MD, Jones RN, Quinn JP. *Dissemination of a pSCFS3-like cfr-carrying plasmid in Staphylococcus aureus and Staphylococcus epidermidis Clinical Isolates Recovered from Hospitals in Ohio*. *Antimicrob Agents Chemother*. 2013, Apr. 9

Evans DJ, Windisch RM, Freedy HR, **Bonilla HF**. *Can a vancomycin assay be utilized to predict plasma telavancin concentrations?* *Int J Antimicrob Agents*. 2013; 41:495-7.

Bonilla H, Mcshannic J, Goldberg Eric, Chua D, Conner R, Fiorentino M, McComsey G *Impact of Human Immunodeficiency Virus Infection on Measures of Cardiovascular Disease in Long-Term Nonprogressors*. *Infectious Diseases in Clinical Practice*. 21(3):177-180, May 2013.

Saravolatz LD, Pawlak J, Johnson L, **Bonilla H**, Saravolatz LD 2nd, Fakhri MG, Fugelli A, Olsen WM. *In vitro activities of LTX-109, a synthetic antimicrobial peptide, against methicillin-resistant, vancomycin-intermediate, vancomycin-resistant, daptomycin-*

nonsusceptible, and linezolid-nonsusceptible Staphylococcus aureus. Antimicrob Agents Chemother. 2012;56(8):4478-82.

Goldberg EA, Venkat-Ramani T, Hewit M, **Bonilla H**. *Epidemiology and clinical outcomes of patients with Fusobacterium bacteremia*. Epidemiol Infect. 2012;17:1-5

Ross A, Leong T, Avery A, Castillo-Duran M, **Bonilla H**, Lebrecht D, Walker U, Storer N, Labbato D, Khaitan A, Tomonova-Soltys I, McComsey G. *Effects of in utero antiretroviral exposure on mitochondrial DNA levels, mitochondrial function and oxidative stress*. HIV Med 2012;13:98-106

Michael M. Lederman, Leonard Calabrese, Nicholas T. Funderburg, Brian Clagett, Kathy Medvik, **Hector Bonilla**, Barbara Gripshover, Robert A. Salata, Alan Taege, Michelle Lisgaris, Grace A. McComsey, Elizabeth Kirchner, Jane Baum, Carey Shive, Robert Asaad, Robert C. Kalayjian, Scott F. Sieg, Benigno Rodriguez. *Immunologic failure despite suppressive antiretroviral therapy is related to activation and turnover of memory CD4 cells*. J Infect Dis. 2011;204:1217-26.

Talal AH, Liu RC, Dimova R, Dove L, Hassaneim T, Doonquah L, Aboulafia D, Rodriguez L, **Bonilla H**, Galpin J, Aberg JA, Johnston B, Glesby MJ, Jacobson IM. *Randomized trial comparing dose reduction and growth factors supplementation for management of hematological side effects in HIB/hepatitis C virus patients receiving pegylated –interferon and ribavirin*. J Acquir Immune Def Syndr. 2011;58:261-8.

Bonilla H., Zervos M., Saravolatz L. D. *Comparison of BACTECM Plus Aerobic/F and Veratrek REDOX® Blood Culture Media for the Recovery of S. Aureus from Patients with Suspected Persistent Bacteremia*. J Infect. 2011;63:89-90.

Bonilla H., Kepley R., Powlak J., Belian B., Raynor A., Saravolatz L.D. *Rapid Diagnosis of Septic Arthritis using 16S rDNA PCR: A Comparison of Three Methods*. Diagn Microb Infect Dis 2011; 69: 390-395.

Hernandez J., Armstrong R., Bazan J., **Bonilla H.**, Bradley J., Dretler R., Ison M. G., Mangio J. E., Maroushek S., Shetty A. K., Wald A., Ziebold C., Elder J., Hollister A., Sheridan W. *Clinical Experience in Adults and Children Treated with Intravenous Peramivir for 2009 Influenza A (H1N1) Under an Emergency IND Program in the United States*. Clin Infect Dis 2011; 52: 695-706.

Bonilla H., Huband M., Seidel J., Schmidt H., Lescoe M., McCurdy S. P., Lemmon M., Brennan L., Tait-Kamradt A., Puzniak L., Quinn J. *Multicity Outbreak of Linezolid-Resistant Staphylococcus Epidermidis Associated with Clonal Spread of a cfr-Containing Strain*. Clin Infect Dis 2010; 51:796-800.

Garcia G., Chua D. J., Perlin D.S., Tomada R.J., DiPersio J., Ghannoum M., **Bonilla H**. *Novel FKS Mutations Associated with Echinocandin Resistance in C. glabrata and C. tropicalis*. Antimicrob Agents Chemother 2010; 54:2225-7.

Selickman J., Paxos M., File, T. M. Jr, Seltzer R., **Bonilla H.** *Performance Measure of Urine Antigen in Patients with Streptococcus Pneumoniae Bacteremia.* Diagn Microbiol Infect Dis 2010; 67:129-133.

Spellberg B., Andes D., Perez M., Anglim A., **Bonilla H.**, Mathisen G. E, Walsh T. J, Ibrahim A. S. *Safety and Outcomes of Open-Label Deferasirox Iron-Chelation Therapy for Mucormycosis.* Antimicrob Agent Chemother 2009; 53: 3122-5.

John G. McHutchison, Eric J. Lawitz, Mitchell L. Shiffman, Andrew J. Muir, Greg W. Galler, Jonathan McCone, Lisa M. Nyberg, William M. Lee, Reem H. Ghalib, Eugene R. Schiff, Joseph S. Galati, Bruce R. Bacon, Mitchell N. Davis, Pabak Mukhopadhyay, Kenneth Koury, Stephanie Noviello, Lisa D. Pedicone, Clifford A. Brass, Janice K. Albrecht, Mark S. **Bonilla H.**, Sulkowski, for the IDEAL Study Team. *Peginterferon Alfa-2b or Alfa-2a with Ribavirin for Treatment of Hepatitis C Infection.* NEJM 2009; 361: 580-593.

Pasquale T., Tomada J.R., Ghannoun M., Dipersio J., **Bonilla H.** *Emergence of Candida Tropicalis Resistance to Caspofungin.* J Clin Microbiol 2008; 61: 219.

Bonilla H., Zervos M. J., Lyons M. J., Bradley S. F., Paul L. K., Kauffman C. A. *Colonization with Vancomycin Resistant Enterococcus Faecium: Comparison of a Long-Term Care Unit with Acute Care Hospital.* Infect Control Hosp Epidemiol 1997; 18:333-339.

Bonilla H., Zervos M. J., Kauffman C. A., Noskin G. A., Peterson L. R. *Long-Term Survival of Vancomycin Resistant Enterococcus Faecium on a Contaminated Surface.* Infect Control Hosp Epidemiol 1996; 17:770-773.

Bonilla H., Zarins L. T., Bradley S. F., Kauffman C. A. *Susceptibility of Ciprofloxacin-Resistant Staphylococci and Enterococci to Trovafloxacin.* Diagnostic Microbiol Dis 1996; 26:17-21.

Bonilla H., Perri M. B., Kauffman C. A., Zervos M. J. *Comparative In-vitro Activity and Synergistic Activity of RP 59500 Against Vancomycin Resistant Enterococci.* Diagnostic Microbiol Infect Dis 1996; 25:127-131.

RECENT ABSTRACTS

Hector F. Bonilla, MD, Pinsky BA, Donn Garvert MS, Tullia Lieb, BS, Jill N. Anderson, BA, Juliana Levy, Amity Hall, Ian J. Valencia, BS, Jose G. Montoya, MD. *Herpes virus infection associated with disease severity in Myalgic Encephalomyelitis/ Chronic Fatigue Syndrome patients.* (ID-Week October 2018, San Francisco)

Hector F. Bonilla¹, Ashley R. Styczynski^{1*}, Elizabeth Treynor², Jolly Shashank², Yonglong Zhang³, Malcolm A. Finkelman³. *Beta-glucanemia after coronary artery bypass graft surgery, a phenomenon with unknown consequences*. (ID- Week 2018. October 2018, San Francisco).

Simon TG, Bonilla H, Yan P, Chung RT, Butt AA. *Statin Type and Dose Reduce the Risk of Cirrhosis and HCC in HCV Infected Patients*. (16-114). Accepted poster presentation at CROI 2016.

Smith BJ, Gress T, Yassin M, Hariri R, Ferrelli J, Bonilla H. *Impact of influenza vaccination on clinical outcomes of patients admitted in a university affiliated large medical center in Pittsburgh, Pennsylvania*. Oral presentation. Presented at 49th annual ASHP (American Society of Health-System Pharmacist). Anaheim, CA. Dec 2014

Bonilla H, Anand R, Weirich M, Perone H, Kieserman J, Freedy H, Andrzejewski C, Shields RS. *Incidence and Risk Factors for Colistin-induced Acute Kidney Injury among Critically-ill Patients*. K- 369. Department of Medicine, University of Pittsburgh; UPMC Mercy Hospital, Pittsburgh, Pennsylvania. ICAAC, Washington DC, Sept. 5-9, 2014.

Pai G, Gidwani H, Nazim S, Buehrle D, Manandhar S, Shutt K, Bonilla H. *Epidemiological Trends of Staphylococcus aureus Blood Stream Infections in an Inner City Community Teaching Hospital - Three Years of Clinical Experience*. K-390. Department of Medicine, University of Pittsburgh; UPMC Mercy Hospital, Pittsburgh, Pennsylvania. ICAAC, Washington DC, Sept. 5-9, 2014.

Pai G, Manandhar S, Gidwani H, Aisha N, Buehrle D, Shutt K, Bonilla H. *Does Staphylococcus aureus bacteriuria predict clinical outcomes in patients with bacteremia?* K-392. Department of Medicine, University of Pittsburgh; UPMC Mercy Hospital, Pittsburgh, Pennsylvania. ICAAC, Washington DC, Sept. 5-9, 2014.

H. Bonilla, T. Walsh, Z. A. Qureshi, F. Pike, J. Kellum; *Do Cytokines (CK) Predict Clinical Outcomes in Patients with Community Acquired Streptococcus Pneumoniae Pneumonia (CASPP)? A Sub-analysis of the Genetic and Inflammatory Markers of Sepsis (Gen-IMS) Study*. B-1426 (oral presentation) Univ. of Pittsburgh Med. Ctr., Pittsburgh, PA. ICAAC, Denver, Co., Sept. 10-13, 2013.

C. Wolslegel, E. Schwaiger, S. Zaidi, H. Bonilla; *Does Vancomycin Dose or Combination with Metronidazole Influence the Clinical Outcomes in Patients with Clostridium Difficile Infection (CDI)?* K-156.) Univ. of Pittsburgh Med. Ctr., Pittsburgh, PA. ICAAC K-156. CAAC, Sept. 10-13, Denver, Co., 2013.

Mendes RE, Deshpande LM, Bonilla HF, Huband MD, Jones RN, Quinn JP. *Analysis of Cfr-carrying Plasmids in Staphylococcus Epidermidis and Staphylococcus Aureus from Two Hospitals in Ohio*. ICAAC, San Francisco, Sept. 9-12, 2012.

Jesse Clanton, Ryan Fawley, Ken Koon Wong, Joel Porter, Anurag Duggal, Charudutt Paranjape, Neurmeen Haller, Bonilla Hector. *Patience is a Virtue: an Argument for Delayed Surgical Intervention in Fulminant CDI*. IDSA, Boston, October 20-23; 2011.

Hallie Barr, Timothy Pasquale, Joseph DiPersio, David Gothard, Hector Bonilla. *Epidemiology and Microbiology of Acinetobacter Baumannii Infection at Summa Health Systems*. IDSA, Boston, October 20-23; 2011.

Eric Goldberg, Mike Hewit, Bonilla Hector. *Epidemiology and Clinical Outcome of Fusobacterium Bacteremia in a Tertiary Hospital*. IDSA, Boston, October 20-23; 2011.

Ross A.C., Leong T., Avery A., Castillo-Duran M., Bonilla H., Storer N., Labbato D., Khaitan A., Seydafkan S., Tangpricha V., McComsey G. A. *High Prevalence of Vitamin D Deficiency in HIV-Infected Pregnant Women*. 6th IAS Conference on HIV Pathogenesis, Treatment and Prevention, Rome, Italy, July 2011.

Shive C., Lederman M., Calabrese L., Funderburg N., Bonilla H., Gripshover B., Salata R., McComsey G., Sieg S., Rodriguez B. *Immunologic Failure Despite Suppressive ART Is Related to Increased Inflammation and Evidence of Microbial Translocation*. CROI 18th, Boston, February, 2011.

Bonilla H., Di Persio J., Define L., Alexander T. *Influence of Daptomycin, Linezolid and Vancomycin, in the Production of Inflammatory Cytokines (IL-1 β , IL-6 and TNF) by Staphylococcus Aureus in Human T Cell Lymphocytes*. 9th Annual Cytokines & Inflammation Conference, San Diego, CA, January 2011.

Fawley R., Moyenunndin M., Caltabiano L., Congeni B., Seidel J., Bonilla H. *The Pandemic Influenza A in a Northeast Ohio Community*. ICAAC 50th, Boston, September 2010.

Bonilla H., Mcshannic J., Chua D., Conner R., Fiorentino M., McComsey G. *Cardiovascular Disease and Inflammatory Markers in Long Term Non-Progressors*. ICAAC 50th, Boston, September 2010, H-220.

Taylor A, Benson P., Corsino A., Bazan J., Bonilla H. *Combination of Triple Nuclear Scan Tc-99m Bone Scan Indium-111 White Blood Cell Scan and Tc-99m Sulfur-Colloid Scan for Diagnosis of Prosthetic Joint Infections*. ICAAC 50th, Boston, September 2010, K-1679.

Saravolatz L. Sr., J. Pawlak, Bonilla H., Johnson L.B., Saravolatz L.D., Fugelli A. *In-vitro Activity of LTX-109 against MRSA, VISA, VRSA, Daptomycin-Non-Susceptible Staphylococcus aureus and Linezolid-Non-Susceptible SA*. ICAAC 50th, Boston, September 2010.

Mendes R. E., Bonilla H., Deshpande, Huband M. D., Jones R., Quinn J. P. *Insertion Sequences Associated with cfr Dissemination in S. epidermidis and S. aureus Recovered from two Medical Facilities in Ohio*. ICAAC 50th, Boston, September 2010, IS21-558.

DiPersio J, Bonilla H. *Compararison of BACTEC™ Plus aerobic/F and VersaTREK REDOX 1® blood cultures media for recovery of S. Aureus from patients with suspected persistent bactermia.* ASM San Diego 2010, C-1134.

Quinn J. P., Bonilla H., Siedel J., Sschmid H., Lescoe M, Mccurdy S. P., Lemmon M.M., Huband M.D., Brennan L.A.,Tait-Kamradt A. *Identification and Characterization of a Linezolid-Resistant, cfr Containing Staphylococcus aureus Strain During a Clonal Outbreak of Linezolid-R Coagulase Negative Staphylococci.* ICAAC 49th San Francisco, 2009, C2-134.

Bonilla H., Quinn, J. P., Siedel J., Schmid H., Lescoe M., Mccurdy S.P., Lemmon M.M., Huband M.D., Brennan L.A.,Tait-Kamradt A. *Multi-city Outbreak of Linezolid Resistant Staphylococcus epidermidis Associated with Clonal Spread of a cfr Containing Strain.* ICAAC 49th San Francisco 2009, C2-131.

Garcia G., Chua D.J., Perlin D.S., Tomada J.R., DiPersio J., Ghannoum M., Bonilla H. *Novel FKS Mutations Associated with Echinocandin Resistance in C. glabrata and C. tropicalis.* 49th ICAAC San Francisco 2009, oral presentation M-1923

Gurm J. , Crafton S. , Brown J., Ali S. , Fawley R., Saxena N., Cawthon L, Seltzer R., Bonilla H. *Epidemiology and Predictive Factors of Mortality in Fulminant Clostridium difficile Infections Requiring Colectomy in a Teaching Hospital.* ICAAC 49th San Francisco 2009, K-2087