

LAWRENCE R. CRANE, M.D.

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EDUCATION:

1959-1962 Monteith College, Wayne State University

1962-1966 MD Degree, Wayne State University School of Medicine, Detroit, MI

TRAINING:

1966 - 1967 Intern, Providence Hospital, Southfield, MI

1967 - 1968 Junior Resident, Internal Medicine, Henry Ford Hospital, Detroit, MI

1969 - 1971 Senior Resident, Internal Medicine, Naval Hospital, Bethesda, MD

1971 - 1972 Chief Resident, Internal Medicine (Medical Service Training Officer), Naval Hospital, Bethesda, MD

1972 - 1974 Trainee in Infectious Disease and Research Fellow in Medicine, Wayne State University School of Medicine, Detroit, MI

FACULTY APPOINTMENTS:

1974 - 1975 Instructor in Medicine, Department of Medicine, Wayne State University School of Medicine, Detroit, MI

1975 - 1987 Assistant Professor of Medicine, Division of Infectious Diseases, Wayne State University School of Medicine, Detroit, MI

1987 - 1995 Associate Professor of Medicine, Division of Infectious Diseases, Wayne State University School of Medicine, Detroit, MI

1995 - Present Professor of Medicine, Division of Infectious Diseases, Wayne State University School of Medicine, Detroit, MI

HOSPITAL OR OTHER PROFESSIONAL APPOINTMENTS:

- 1978 - 1991 Medical Director, Department of Infection Control, Harper-Grace Hospitals and Rehabilitation Institute, Detroit, MI.
- 1979 - Present Section Vice Chief, Division of Infectious Diseases, Harper Hospital, Detroit, MI.
- 1988 - 1989 At-large Member, Medical Executive Committee of the Medical Staff, Harper-Grace Hospitals, Detroit, MI.
- 1988 - 1992 Representative, Medical Board, Harper-Grace Hospital, Detroit, MI.
- 1998 - 2000 Physician Liaison, representing Infectious Diseases Inpatient Services, Harper Hospital, Detroit, MI
- 1991 - Present Director, Adult HIV/AIDS Programs, Detroit Medical Center, Wayne State University.**
- 1997 - Present Director, Infectious Diseases Outpatient Clinic, Detroit Medical Center, Wayne State University**

MAJOR PROFESSIONAL SOCIETIES:

Fellow, Infectious Diseases Society of America

Fellow, American College of Physicians

Member, American Society for Microbiology

Charter Member, Michigan Infectious Disease Society

Charter Member, International AIDS Society

Charter Member, HIV Medical Association, Infectious Diseases Society of America

LICENSURE & BOARD CERTIFICATION:

- Licensure State of Michigan 4301028022
- 1972 American Board of Internal Medicine
- 1978 Subspecialty of Infectious Disease

HONORS/AWARDS:

- 1966 A. Ashley Rosuk Award in Internal Medicine, Wayne State University School of Medicine, Detroit, MI

- 1978 Physician of Year Award, Hutzel Hospital, Detroit, MI
- 1989 Honored by the Dionne Warwick Foundation for work in AIDS in Detroit.
- 1991 Community Service Award, AIDS Consortium of Southeastern Michigan.
- 1993, 1995 Leading Detroit Area HIV/AIDS Clinician *Detroit Monthly*
- 1996 Distinguished Alumni Award, Wayne State University
- 1999 Wayne State University Service Award (25 years)
- 2000 Leading Detroit Area HIV/AIDS Clinician, *Hour Detroit Magazine*
- 2001 College Teaching Award, Wayne State University

HONORS/AWARDS (continued):

- 1997-present Best Doctors in America**
- 2004 College Teaching Award, Wayne State University**
- 2004 Wayne State University Service Award (30 years)**
- 2005 The JoAnn James Award presented by the Southeastern Chapter of the Association of Nurses in AIDS Care**

SERVICE:

Patient care

Director Infectious Diseases Outpatient Services at the Detroit Medical Center, Wayne State University School of Medicine. Outpatient Service provides care for over 2,000 persons with HIV infection. Personally provide care for over 300 persons with HIV infection. Generally rounds on inpatient Infectious Diseases consultation service 2-4 months each year. Developed the HIV/AIDS Corrections Medicine Clinic at Jackson Prison, one of the largest prisons in the United States. About 300 inmates with HIV are being followed at present.

Professional consultation (past 10 years)

April, 1999. Testimony to John Engler, Governor of Michigan on HIV/AIDS care.

April, 1999. Testimony to the Michigan State Senate Appropriations Committee on HIV/AIDS care.

April, 2000. Testimony to the Michigan State Senate Appropriations Committee on HIV/AIDS care.

May, 2000 Testimony to the Michigan Department of Public Health on HIV/AIDS care.

1995-Present. Consultant on HIV/AIDS care, Michigan Department of Corrections

Editorial activity (past 10 years)

1983 - Present Reviewer, Clinical Infectious Diseases (Formerly Reviews of Infectious Diseases)

1999- Present Reviewer Clinical Neurology

National boards and committees (past 10 years)

1992 -1996 Protocol Concept Chair, Antiretroviral Salvage Concept, National Institute of Allergy and Infectious Diseases

1996-1997 Protocol Co-Chair, CPCRA 041, A Randomized Trial of Immediate vs. Deferred Indinavir in Addition to

SERVICE:

Background Antiretroviral Therapy in HIV-Infected Persons with CD4 cell counts > 200.

1995-1997 Member, HIV Therapies Sub-Committee, Community Programs for Clinical Research on AIDS, National Institute of Allergy and Infectious Diseases

1997 Member, Clinical Trials Coordination Task Force, Community Programs for Clinical Research on AIDS, National Institute of Allergy and Infectious Diseases

1997-1998: Protocol Chair, CPCRA Concept: Are Failures in Prophylaxis Against *Pneumocystis carinii* Pneumonia (PCP) in People With HIV Infection Associated with Mutations?

1996-2002 Member CPCRA 048 Effect of Prophylaxis for Disseminated *Mycobacterium avium* complex Disease on Emergence of Resistant Pneumococci. Community Programs for Clinical Research on AIDS, National Institute of Allergy and Infectious Diseases

1998. Member, Site Selection Committee, Community Programs for Clinical Research on AIDS, National Institute of Allergy and Infectious Diseases

*National boards and committees
(past 10 years, continued)*

1998-2000 Member, Publications and Presentations Committee, Community Programs for Clinical Research on AIDS, National Institute of Allergy and Infectious Diseases

2000-2001. Member, US Department of Defense, Department of the Army. HIV/AIDS Research Program Review

1996-1997 Member, CPCRA 049 Prophylaxis for *Pneumocystis carinii* and Bacterial Pneumonia in HIV-Infected Patients Who Experience Rebound in CD4+ Cell Counts Due to Highly Active Antiretroviral Therapy. Community Programs for Clinical Research on AIDS, National Institute of Allergy and Infectious Diseases

1996-2003 Member, CPCRA 047 Prophylaxis for

SERVICE:

Disseminated *Mycobacterium avium* complex Disease and Bacterial Pneumonia in HIV-Infected Patients Who Experience Rebound in CD4+ Cell Counts Due to Highly Active Antiretroviral Therapy. Community Programs for Clinical Research on AIDS, National Institute of Allergy and Infectious Diseases

1997-2004: Protocol Co-Chair, CPCRA 057: A Randomized Study of the Virologic Efficacy of Different Antiretroviral Treatments for HIV-Infected Individuals Experiencing Therapeutic Failure on Their Initial Antiretroviral regimens containing Nelfinavir (NFV) or Indinavir (IDV)/Ritonavir (RTV)

1994- Present Member, Steering Committee, Community Programs for Clinical Research on AIDS, National Institute of Allergy and Infectious Diseases

1999-Present Member, CPCRA 064: A Randomized Trial of Strategic Treatment Interruption In HIV-Infected Patients with Multiple Drug Resistant Virus, , NIAID

*National boards and committees
Past 10 years (continued)*

2000-Present. Co-Chair, Unit Performance Committee, Community Programs for Clinical Research on AIDS, NIAID.

2002-2006 Member Anal dysplasia substudy proposal of CPCRA 065: A Large, Simple Trial Comparing Two Strategies for Management of Antiretroviral Therapy (The SMART Study).

2003-2005 Member Ryan White Advisory Committee, HIV Medical Association, Infectious Diseases Society of America.

2005-Present. Member, National Provider Advisory

SERVICE:

Board, Morbidity Monitoring Project, Centers for Disease Control and Prevention.

2005-Present: Member, Research to Practice Committee, Midwest AIDS Training and Education Center

State/local boards and committees (last 10 years) 1994-2000 Chair, Community Primary Care Network for HIV/AIDS.

1993-1996 Board Member, Executive Committee Member, Southeastern Michigan HIV/AIDS Council

1993-1996 Chair, Resource Allocations Committee, Southeastern Michigan HIV/AIDS Council

1996-1997 Member, Maternal and Child Advisory Committee Subcommittee on Perinatal HIV Reduction. State of Michigan Department of Community Health

State/local boards and committees (last 10 years, continued) 1996-2000. Member, Long Range Planning Committee, Southeastern Michigan HIV/AIDS Council

1997-1999, 2000-2002, 2002-2004 Member, Wayne State University Department of Medicine Promotions and Tenure Committee

1997-2001 Member, Department of Medicine Clinical Operations Committee

1999-2001 Member, HIV/AIDS Managed Care Committee, Michigan Infectious Diseases Society

2000-2002 Member, State of Michigan Advisory Committee on Medicaid Reimbursed HIV/AIDS Care

SERVICE:

2001-2003 Member, Wayne State University Human Investigation Steering Committee

2001-2002 Chair, Affiliated Internists Data Committee

2001-2002 Member Affiliated Internists Quality Improvement/Chronic Diseases Management Committee

1996-present. Member, Formulary Committee. AIDS Drug Assistance Program. State of Michigan

1997-present Member, Wayne State University Human Investigations Committee (Institutional Review Board)

1999-Present Medical Director, AIDS Partnership Michigan

2001-Present. Member, Board of Directors, AIDS Partnership Michigan

2006-Present Chair, Wayne State University Department of Medicine Promotions and Tenure Committee

2006-2009 Member, Hearing Panel, Wayne State University School of Medicine Faculty Senate

TEACHING

Years at Wayne State University: 33 years

Courses taught at Wayne State since 1996:

Year II Medical Student Immunology/Microbiology, HIV/AIDS Clinical Correlation Lecture

Year II Physical Diagnosis

Year III Medical Student Internal Medicine, HIV/AIDS Primary Care Lecture

Year IV Medical Student Infectious Diseases Elective

Year IV Medical Student HIV/AIDS Elective (Course Director)

PGY I-III Infectious Diseases Elective

PGY II-III HIV/AIDS Required Rotation (Course Director)

Infectious Diseases Fellow Clinical Rotation in Infectious Diseases

Infectious Diseases Fellow Outpatient HIV/AIDS Rotation (Course Director)

HIV/AIDS Course for Primary Care Practitioners (22.5 CME credits, Course Director), 1990-1997

Essays/Theses/Dissertations directed

Student: JoLynn Pratt

Level: Ph.D. Candidate; University of Michigan School of Public Health

Title of Project: Correlates of Survival in AIDS Patients Participating in the SHAS and ASD Projects

Years: 1999-2000.

Student: Jan Kosmyna

Level: MS Candidate, Wayne State University School of Liberal Arts

Title of Project: A Critical Examination of Institutional Review Boards

Years: 2001-2002

Course or curriculum development

HIV/AIDS for the primary care practitioner

HIV/AIDS rotation for Internal Medicine Residents

HIV/AIDS elective for senior medical students

GRANT SUPPORT (SINCE 1996)

09/86-12/96 Centers for Disease Control - "Sentinel Surveillance System for HTLVIII/LAV Infection" - \$3,000,000

09/94-02/96 Upjohn Laboratories "Clinical Trials of Delaveradine" \$7,380/patient

04/98-04/99 A Multicenter, Open-Label, Randomized, 24-Week Study to Compare the Safety and Activity of Indinavir Sulfate, 800 mg q8h Versus 1200 mg q12h, in HIV-Infected Individuals Having Plasma Viral RNA Less Than 400 copies/mL, on Concomitant Therapy with 2 Nucleoside Analogue Reverse Transcriptase Inhibitors (NRTI) Merck Pharmaceuticals \$24,896

5/98-2004 present A 1592U89 Open Label Protocol for Adult Patients with HIV-1 Infection. Clinical Trials Research, Inc. \$3,200

10/99 - 09/00 HIV Clinical and Resource Evaluation Database (HIVCARE) John Hopkins Medical Institutions - AHCPH Contract #290-98-0016-02 \$25,000

01/00- 12/03 GS-4331-05 Protocol Treatment of HIV-Infected Patients trial with Tenofovir Gilead Sciences, Inc. \$38,368

10/99- 9/04 Contract: #20000481 (PI: L Crane) MDCH, (HIV/AIDS Surveillance Section and HIV Incidence and HIV Prevalence Studies, Bureau of Epidemiology) Cooperative Program with CDC Sentinel Surveillance for Variant & Drug Resistant HIV Strains (SSVRS) \$25,200

12/1/2001-11/30/2002 Bristol Meyers Squibb HIV AIDS Educational/Training Grant PI: L. Crane \$35,000

1/15/02 -1/15/03 Boehringer Ingelheim Pharmaceuticals Project on Nevirapine therapy with Abacavir and Stavudine. PI: L Crane \$35,000

4/01/01 – 3/31/07 Social & Scientific Systems, Inc (PI L Crane) A Large, Simple Trial Comparing Two Strategies for Management of Anti-Retroviral Therapy (SMART) \$ 343,936

10/89-10/06 WSU Community Program for Clinical Research in AIDS. NIAID. \$4,582,947 per 5 year cycle. Competitive renewal award, 1999, with a score of 181.

01/91 - present Health Resources Services Administration. Ryan White Care ACT Title 3: Primary Care for PWHs and AIDS. \$2,726,532 per 3 year cycle.

04/96 - present Health Resources Services Administration, (Subcontract from the City of Detroit) Ryan White Care Act Title I: Emergency Care for PWHs and AIDS. \$ 200, 000 per year

10/01/01-9/30/06 SubContract #290-01-0012 (R. Moore, PI: Johns Hopkins University; L Crane, PI –WSU) Agency for Healthcare Research and Quality (AHRQ) HIV Research Network \$259,320

4/1/03 – 3/31/06 NIH 1R2EB001529-01A1 (H Ying PI - Engineering; L Crane PI-Medicine Unit) A Treatment Decision Modeling and Optimizing Technology \$130,000

4/1/04 – 4/30/06 Ingenix Pharmaceuticals (L Crane PI) ZEST QD: A Phase IIIB, Randomized, Multicenter Study Evaluation on the Effect on Serum Lipids following a switch to Atazanavir/Ritonavir in HIV-1 Infected Subjects Who Have Achieved Virologic Suppression on a Lopinavir/Ritonavir Based Regimen

6/1/04-6/30/05 Bristol Myers Squibb (LCrane PI) Atazanavir Experience in an Urban University HIV Clinic \$15,000

8/1/04 – 7/31/06 WSU Presidents Award (HYing PI -Engineering; L Crane PI -Medicine Unit) A Treatment Decision Modeling and Optimizing Technology \$167,000

10/1/06 - 01/31/07 GlaxoSmithKline – (Local or Site Investigator) \$11,667 GSK ABC107442 – The SHAPE Study: A retrospective case-control study to estimate the sensitivity and specificity of a pharmacogenetic marker (HLA-B*5701) in subjects with and without hypersensitivity to abacavir

PUBLICATIONS:

Original Observations in Refereed Journals

1. Lerner AM, MJ Shippey, and LR Crane: Serologic responses in rabbits to herpes simplex virus. Complement-requiring neutralizing conventional neutralizing and passive hemagglutinating antibiotics. *J Infect Dis* 129:623-636, 1974.
2. Crane LR and AM Lerner: Gram-negative pneumonia in hospitalized patients. *Postgrad Med* 58:85-92, 1978.
3. Crane LR, CC Kapdi, JN Wolfe, BK Silverberg, and AM Lerner: Xeroradiographic, bacteriologic and pathologic studies in experimental staphylococcus osteomyelitis. *Proc Soc Exp Biol Med* 156:303-314, 1977.
4. Crane LR and AM Lerner: Non-traumatic gram-negative bacillary meningitis in the Detroit Medical Center, 1964-1974 (with special mention of cases due to *Escherichia coli*). *Medicine* 57:197-209, 1978.
5. Crane LR, PA Gutterman, TA Chapel, and AM Lerner: Incubation of swab materials with herpes simplex virus. *J Infect Dis* 141:531, 1980.
6. Crane LR, DR Emmer, and A Grguras: Prevention of infection on the oncology unit. *Nursing Clinics North Am* 15:843-856, 1980.
7. Crane LR, LC Tagle, and WA Palutke: A nosocomial outbreak in an intensive care facility due to *Pseudomonas paucimobilis*. *JAMA* 246:985, 1981.
8. Crane LR, HB Levy, and AM Lerner: Topical polyriboinosinic - polyribocytidylic acid complex in the treatment of recurrent genital herpes. *Antimicrob Agents Chemoth* 21:481-485, 1982.
9. Bawdon RE, LR Crane, and S Polchardi: Antimicrobial-resistant anaerobic bacteria: molecular biology and clinical aspects. *Reviews Infect Dis* 4:1075-1095, 1982.
10. Crane LR, DA Milne, JC Sunstrum, and AM Lerner: Comparative activities of selected combinations of acyclovir, vidarabine, arabinosyl hypoxanthine, interferon, and polyriboinosinic acid-polyribocytidylic acid complex against herpes simplex virus type 2 in

tissue culture and intravaginally against herpes simplex virus type 2 in tissue culture and intravaginally inoculated mice. *Antimicrob Agents Chemoth* 26:557-562, 1984.

11. Crane LR and DA Milne: Comparative activities of combinations of acyclovir, vidarabine or its 5' - monophosphate, and cloned human interferons against herpes simplex virus type 2 in human and mouse fibroblast cultures. *Antiviral Res* 5:325-333, 1985.
12. Hatfield SA, LR Crane, K Duman, C Karanes, and RJ Kiel: Miconazole-induced alterations in tobramycin pharmacokinetics variables: a possible lipid intermediary. *Clin Pharm* 5:415-420, 1986.
13. Crane LR, DP Levine, MJ Zervos, and G Cummings: Bacteremia in narcotic addicts in the Detroit Medical Center. I. Microbiology, epidemiology, risk factors, and empiric therapy. *Rev Infect Dis* 8:364-373, 1986.
14. Levine DP, LR Crane, and MJ Zervos: Bacteremia in narcotic addicts in the Detroit Medical Center. II. Infectious endocarditis; a prospective comparative study. *Rev Infect Dis* 8:374-396, 1986.
15. Palutke WA, LR Crane, BB Wentworth, JG Geiger, L Cardozo, A Singhakowinta, J Bartley, and BE Robinson: Legionella feeleii - associated pneumonia. *Amer J Clin Pathol* 86:348-396, 1986.
16. Chandrasekar PH, Crane LR, Bailey EJ: Comparison of the activity of antibiotic combinations in vitro with clinical outcome and resistance emergence in serious infection by Pseudomonas aeruginosa in non-neutropenic patients. *J Antimicrob Chemother* 19:321-329, 1987.
17. Crane LR and Sunstrum J: Enhanced efficacy of nucleoside analogs and recombinant alpha interferon in weanling mice lethally infected with herpes simplex type II. *Antiviral Research* 9:1-10, 1988.
18. Komshian SV, AK Uwaydah, JD Sobel, LR Crane: Fungemia caused by Candida species and Torulopsis glabrata in the hospitalized patient: Frequency, characteristics, and evaluation of factors influencing outcome. *Reviews of Infectious Diseases* 11:379-390, 1989.
19. Crane LR: AIDS in Detroit. *Detroit Medical News* 79:22;6-7, 1988.
20. St. Louis ME, Rauch KJ, Peterson LR, Anderson JE, Schable CA, Dondero TJ, and the Sentinel Hospital Surveillance Group: Seroprevalence Rates of Human Immunodeficiency Virus Infection at Sentinel Hospitals in the United States. *New England Journal of Medicine* 323:213-218, 1990.

21. Hussain M, Kish JA, Crane LR, Uwayda A, Cummings G, Ensley JF, Tapazoglou E, Al-Saffaf, M: The Role of Infection in the Morbidity and Mortality of Patients with Head and Neck Cancer Undergoing Multimodality Therapy. *Cancer* 67:716-421, 1991.
 22. Murphy RL, Lavelle JP, Allan JD, Gordin FM, Dupliss R, Boswell SL, Waskin HA, Davies SF, Graziano FM, Saag MS, Walter JB, Crane LR, MacDonell KB, Hodges TL, Pierce PF: Aerosol Pentamidine Prophylaxis Following *Pneumocystis carinii* pneumonia in AIDS Patients. *Amer J Med* 90:418-426, 1991.
 23. Reddy LV, Zammit C, Schuman P, Crane LR: Detection of *Pneumocystis carinii* in a rat model of infection by polymerase chain reaction. *Mol Cell Probes* 6:137-143, 1991.
 24. Robbins BE, Steiger Z, Wilson RF, Ratanath V, Karanes C, Bander J, Joseph R, Crane L, Talbert J: Diagnosis of Acute Diffuse Pulmonary Infiltrates in Immunosuppressed Patients by Open Biopsy of the Lung. *Surg Gyn Obstet* 175:8-12, 1992.
 25. Katz DJ, Hall WN, Keon NB, Crane LR: HIV Testing of Tuberculosis Patients: Physician Response to National Recommendations. *Amer Rev Resp Dis* 147:1283-86, 1993.
 26. Abrams DI, Goldman AI, Launer C, Korvick JA, Neaton JD, Crane LR, et al.: Comparative Trial of Didanosine and Zalcitabine in Patients with Human Immunodeficiency Virus Infection who are Intolerant of or have Failed Zidovudine Therapy. *N. Engl J Med*, 330:657-662, 1994.
 27. Spruance SL, Pavia AT, Peterson D, Berry A, Pollard R, Patterson TF, Frank I, Remick SC, Thompson M, MacArthur RD, Morey GE Jr., Ramirez-Ronda CH, Bernstein BM, Sweet DE, Crane LR, et al.: A Double-Blind Trial of Didanosine vs Continuation of Zidovudine in HIV-1 Infected Patients with a History of Prolonged Zidovudine Therapy and Increasing Symptoms. *Ann of Int Med* 120:360-368, 1994.
 28. Villareal KM; Cook RA; Galgiani JN; Wenzel RP; Pappas PG; Pottage JC Jr.; Gallis HA; Crane LR: Comparative analysis of three antifungal susceptibility test methods against prospectively collected *Candida* species. *Diagn Microbiol Infect Dis* 1994 Feb;18(2):89-94
 29. Upadhyay S, Marks SC, Arden RL, Crane LR, Cohn AM:: Bacteriology of Sinusitis in HIV Positive Patients: Implications for Management. *Laryngoscope* 105:1058-1060, 1995
 30. Chan ISF, Neaton JD, Saravolatz LD, Crane LR, Osterberger J: Frequencies of Opportunistic Diseases Prior to Death among HIV Infected Persons. *AIDS* 9:1145-51, 1995.
 31. Goldman AI, Carlin BP, Crane LR, Launer C, Korvick JA, Deyton L, Abrams D: Response of CD4+ and Clinical Consequences to Treatment Using ddI or ddC in Patients with Advanced HIV Infection. *Journal of AIDS* 11:161-169, 1996.
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32. Ormerod LD, Rhodes RH, Crane LR, Houchin K, Ksang JR: Ophthalmological Manifestations of AIDS-Associated Progressive Multifocal Leukoencephalopathy. *Ophthalmology* 103:899-906, 1996.
33. Marks SC, Upadhyay S, Crane LR: Cytomegalovirus Sinusitis: A New Manifestation of AIDS. *Archives Otolaryngol* 122:789-791, 1996.
34. Saravolatz LD, Winslow DL, Collins G, Hodges JS, Pettinnelli C, Stein DS, Markowitz N, Reves R, Loveless MO, Crane LR, et al. Zidovudine Alone or in Combination with Didanosine or Zalcitabine in HIV-Infected Patients with the Acquired Immunodeficiency Syndrome or Fewer Than 200 CD4 Cells Per Cubic Millimeter. *N. Engl J Med*, 335:1099-1106, 1996.
35. Gordin FM, Nelson E, Matts J, Cohn D, Ernst J, Benator D, Besch CL, Crane L, et al.: The Impact of Human Immunodeficiency Virus on Drug Resistant Tuberculosis in the United States. *Amer J Resp and Crit Care Med*, 154:1478-1483, 1996.
36. Fessler RD, Sobel J, Guyot L, Crane L, Vazquez J, Szuba MJ, Diaz FG. Management of Intracranial Pressure in Patients with Cryptococcal Meningitis. *JAIDS* 1998, 17:137-142
37. Albert JM, Ioannidis JPA, Reichelderfer P, Conway B, Coombs RW, Crane LR, et al.: Statistical Issues for HIV Surrogate Endpoints: Point Counterpoint. Results of an NIAID Workshop. *Statistics in Medicine* 1998, 17:2435-2462.
38. Chandrasekar PH, Nandi P, Fairfax MR, Crane L: Cutaneous Infections Due to *Acanthameba* in Patients with AIDS. *Arch Intern Med*. 1997 Mar 10;157(5):569-72.
39. Chin KM, Sidhu JS, Janssen RS, Weber JT and the Sentinel Hospital Surveillance System Principal Investigators. Prevalence of Invasive Cervical Cancer among Human Immunodeficiency Virus-infected and Uninfected Hospital Patients, 1994-1995. *Obstetrics and Gynecology*, 1998 92:83-7.
40. El-Sadr WM, Luskin-Hawk R, McCurik TM, Walker J, Abrams D, St Johns, Sherer R, Crane LR, Labriolola A: A Randomized Trial of Daily and Thrice Weekly Trimethoprim Sulfamethoxazole for the Prevention of *Pneumocystis carinii* Pneumonia in HIV-Infected Individuals. *Clinical Infectious Diseases*, 1999, 29:775-783.
41. Reilly TP, MacArthur RD, Farrough MJ, Crane LR, Woster PM, Svensson CK: Is Hydroxylamine-Induced Cytotoxicity a Valid Marker for Hypersensitivity Reactions to Sulfamethoxazole in HIV-Infected Individuals? *Journal of Pharmacology and Experimental Therapeutics*, 1999, 291:1356-1364.

42. O'Neil WM, Drobitch RK, MacArthur RD, Farrough MJ, Doll MA, Fretland AJ, Hein DW, Crane LR, Svensson CK: Acetylator phenotype and genotype in patients infected with HIV: Discordance between methods for phenotype determination and genotype. *Pharmacogenetics*, 2000. 10:171-182
43. El-Sadr WM, Burman WJ, Bjorling Grant L, Matts JP, Crane L, Zeh D, Gallagher B, Mannheimer S, Martinez A, Hafner R, and Gordin F: Discontinuation of Prophylaxis against *Mycobacterium avium* complex in HIV-infected patients who have a response to antiretroviral therapy. *New Engl J Med*, 2000, 342:1085-1092.
44. Kazanjian P, Armstrong W, Hossler PA, Richardson J, Crane LR, Katz J, Burman R, Meshnick S: *Pneumocystis carinii* mutations are associated with duration of sulfa prophylaxis and with sulfa treatment failure and in AIDS Patients. *Journal of Infectious Diseases* 2000, 182:551-557
45. Cinti SK, Kaul DR, Sax PR, Crane LR, Kazanjian PH: Recurrence of *Mycobacterium avium* Infection in Patients Receiving Highly Active Antiretroviral Therapy and Antimycobacterial Agents. *Clinical Infectious Diseases*, 2000, 30:511-514
46. Brown PD, Crane LR. Avascular necrosis of bone in patients with human immunodeficiency virus infection: a report of six cases and review of the literature. *Clin Infect Dis*, 2001, 32:1221-1226.
47. Kazanjian P, Armstrong W, Hossler PA, Huang L, Beard CB, Crane L, Duchin J, Burman W, Richardson J, Navin MD T, Meshnick S: *Pneumocystis carinii* cytochrome b mutations are associated with atovaquone exposure in AIDS Patients. *J Infect Dis* 2001: 183:819-822
48. Pratt Montgomery JL, Gillespie BW, Gentry AC, Mokotoff ED, Crane LR, James SA: Does access to health care impact survival time after AIDS? *AIDS Patient Care and STDs* 2002: 16: 223-231.
49. The HIV Research Network (Moore RD, Crane LR, Fine S, Gold M, et al.) Hospital and Outpatient Health Services Utilization Among HIV-Infected Patients in Care in 1999. *Journal of Acquired Immune Deficiency Syndromes* 2002: 30:21-26
50. O'Neil WM, MacArthur RD, Farrough M, Doll M, Fretland AJ, Hein DW, Crane LR, Svensson CK. Acetylator Phenotype and Genotype in HIV-infected Patients with and without Sulfonamide Hypersensitivity. *J Clin Pharmacology* 2002: 42:613-619
51. J Lawrence, D Mayers, K Huppler Hullsiek, G Collins, D Abrams, R Reisler, L Crane, B Schmetter, T Dionne, J Saldanha, M Jones, J Baxter, the CPCRA 064 Study Team of the Terry Beinr Community Programs for Clinical Research on AIDS. CPCRA 064: A Multicenter in Patients with Multi-drug Resistant Human Immunodeficiency Virus. *New England Journal of Medicine*. 2003: 349:837-846.

52. O'Neil WM, Drobitch RK, MacArthur RD, Farrough MJ, Crane LR, Svensson CK. Beta-glucuronidase activity in patients infected with HIV. *AIDS* 2003; 17:269-70.
 53. Baciewicz FA Jr, MacArthur RD, Crane LR. Repair type I aortic dissection in a patient with human immunodeficiency virus infection. *Ann Thorac Surg.* 2003; 76(3):917-9.
 54. **Hao Ying, Feng Lin, Xiaodong Luan, Rodger D. MacArthur, Jonathan A. Cohn, Daniel C. Barth-Jones, and Lawrence R. Crane: A Fuzzy Discrete Event System for HIV/AIDS Treatment Planning. IEEE International Conference on Fuzzy Systems, 43rd IEEE Conference on Decision and Control, December 14-17, 2004, Bahamas (14 page refereed conference report).**
 55. **Gebo KA, Fleishman JA, Richard Conviser R, Reilly ED, Korthuis PT, Moore RD, Hellinger J, Keiser P, Rubin HR, Crane L, Hellinger FJ, Mathews WC: Racial and Gender Disparities in Receipt of HAART Persist in a Multi-State Sample of HIV Patients in 2001. JAIDS 2005; 38:96-103**
 56. **Wotring LL, Montgomery JP, Mokotoff ED, Inungu JN, Markowitz N, Crane LR. Pregnancy and Other Factors Associated with Higher CD4+ T-cell Counts at HIV Diagnosis in Southeast Michigan, 1992-2002. Medscape General Medicine. March 16, 2005. Available at <http://www.medscape.com/viewarticle/498351>.**
 57. **Lin, Feng, Hao Ying, Xiaodong Luan, Rodger D. MacArthur, Jonathan A. Cohn, Daniel C. Barth-Jones, and Lawrence R. Crane, "Theory for a Control Architecture of Fuzzy Discrete Event Systems for Decision Making," *Proceedings of IEEE Conference on Decision and Control and European Control Conference*, Seville, Spain, December 12-15, 2005 (6 page refereed conference report).**
 58. **Salimnia H Moore EC Crane LR, MacArthur RD, Fairfax MR: Discordance Between Viral Loads Determined by Roche Cobas Amplicor HIV-1 Monitor, Version 1.5, Standard (STD) and UltraSensitive (ULTRA) Assays Caused by Freezing Patient Plasma in Centrifuged BD Vacutainer® Brand Plasma Preparation Tubes™ (PPT). J Clin Microbiol 2005; 43:4635-4639**
 59. **Betz ME, Gebo KA, Barber E, Sklar P, Fleishman JA, Reilly ED, MathewsWC, and the HIV Research Network. Patterns of Diagnoses in Hospital Admissions in a Multistate Cohort of HIV-Positive Adults in 2001. Medical Care 2005, 43: III-3-III-14.**
 60. **Gebo KA, Fleishman JA, Reilly Ed, Moore RD, and the HIV Research Network. High Rates of Primary Mycobacterium avium Complex and Pneumocystis jiroveci Prophylaxis in the United States. Medical Care 2005, 43: III-23-III-30.**
 61. **Fleishman JA, Gebo KA, Reilly ED, Consiver R, Mathews WC, Lorthuis PT, Hellinger J, Rutstein R, Keiser P, Rubin H, Moore RD and the HIV Research Network. Hospital and Outpatient Health Services Utilization Among HIV-Infected Adults in Care 2000-2001. Medical Care 2005, 43: III-40-III-52.**
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62. Ying, H., Lin, F., Luan, X., MacArthur, R.D., Cohn, J.A., Barth-Jones, D.C., Crane, L.R. **A Fuzzy Discrete Event System Approach to Determining Optimal HIV/AIDS Treatment Regimens. IEEE Transactions on Information Technology in Biomedicine 2006 10: 663-676**
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Multi center Study Participant:

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PRESENTATIONS:

Invited and/or refereed international or national meetings.

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 52. The HIV Research Network. Antiretroviral Use Is Associated with Healthcare Utilization in a Multi-State Sample of HIV Patients. 19th International Conference on Pharmacoepidemiology. Philadelphia, 2003
 53. MacArthur RD, LR Crane, D Alvarez, M Fairfax, D Richmond, G Curtis. Factors Associated with Selection of the K65R Mutation: A Retrospective Chart Review. 2nd IAS Conference on HIV Pathogenesis and Treatment. Paris, France 2003
 54. Kelly Gebo, MD, MPH, Haya R. Rubin, MD, PhD, for the HIV Research Network. Antiretroviral Therapy (ART) utilization and opportunistic illness (OI) prophylaxis rates in a multi-site sample of HIV patients. *American Public Health Association (APHA) 131st Annual Meeting, San Francisco, CA, Nov. 15-19, 2003.*
 55. Rubin HR, Gebo KA, Reilly ED, Hellinger JA, Fleishman JA, for the HIV Research Network The HIV Research Network: Variations in Quality of Care. *20th International Conference of the International Society for Quality in Health Care, Dallas, TX, Nov. 2-5, 2003*
 56. Kelly A. Gebo, Erin D. Reilly, John A. Fleishman, Haya Rubin, P. Todd Korthuis, W. Christopher Mathews, James Hellinger, Richard Rutstein, Philip Keiser, and the HIV Research Network Hospitalizations for diabetic, cardiovascular, and cerebrovascular events in a multi state sample of HIV patients. *41st Annual Meeting of the Infectious Diseases Society of America (IDSA), San Diego, CA, Oct. 9-12, 2003.*
 57. Kelly A. Gebo MD MPH, Erin D. Reilly MPH, John A. Fleishman PhD, W. Christopher Mathews MD MSPH, Philip Keiser MD, and the HIV Research Network Healthcare Utilization and Costs in a Multi-State HIV Cohort. *Academy Health's 5th International Conference on Scientific Basis of Health Services Research, Washington DC, Sept. 20-23, 2003.*
 58. Kelly A. Gebo MD, MPH, John A. Fleishman PhD, Haya R. Rubin MD, PhD, Wm. Christopher Mathews, Philip Keiser, MD, James A. Hellinger, MD and the HIV Research Network. Outpatient Utilization is Associated with Opportunistic Illness Prophylaxis in a Multi-State Sample of HIV Patients. *Academy Health's 5th International Conference on Scientific Basis of Health Services Research, Washington DC, Sept. 20-23, 2003.*
 - 59. J Kostman, B Grund, R Leduc, J Baxter, L Crane, and Terry Bein Community Programs for Clinical Research on AIDS. A Randomized Trial of 1 or 2 Protease**
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Inhibitors in Combination with a Non-nucleoside Reverse Transcriptase Inhibitor and Background Therapy in Patients with Virologic Failure on an Initial Protease-inhibitor Containing Regimen. Abstract 548. 11th Conference on Retroviruses and Opportunistic Infections, Feb 8-11, 2004, San Francisco.

60. Salimnia, H, M. R. Fairfax, L. Crane, R. D. MacArthur. 2004. Genotypic and phenotypic analysis of a novel deletion in the HIV-1 reverse transcriptase $\square 3$ - $\square 4$ hairpin loop (residues 69 and 70) that confers reduced susceptibility to all nucleoside reverse transcriptase inhibitors. 20th Annual Clinical Virology Symposium, Clearwater, Florida.
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 62. Gebo KA, Josephs JS, Chander G, Hellinger J, Moore RD, Roth P, Dilanardo J and the HIV Research Network. Factors Associated with Use of HAART in Patients with AIDS in the Multisite HIV Research Network. *12th Conference on Retroviruses and Opportunistic Infections (CROI), Boston, MA, Feb 22-25, 2005.*
 63. Gebo KA, Josephs JS, Moore RD and the HIV Research Network. Use of Complementary and Alternative Therapies: Results from a Multisite, Multistate Survey. *Academy Health's 2005 Annual Research Meeting, Boston, MA, June 26-28, 2005.*
 64. Crane L. Incorporating Research into the Clinic. Invited workshop presentation. Health Resources and Services Administration HIV/AIDS Bureau, Division of Community Based Programs. Regional Technical Workshop. August 3-5, 2005, San Francisco, CA.
 65. Gebo K, Josephs J, Fleishman J, Mathews WC, Lawrence P, Moore RD, for the HIV Research Network: HIV Patients have High rates of Emergency Department Utilization in a multisite, multistate HIV Cohort. #928 13th Conference on Retroviruses and Opportunistic Infections Denver, CO February 5-8, 2006
 66. Gebo K, Fleishman J, Conviser R, Hellinger J, Helinger F, Keiser P, Gaist P, Moore RD, for the HIV Research Network: Contemporary Costs of HIV Health Care in the HAART Era #537 13th Conference on Retroviruses and Opportunistic Infections Denver, CO February 5-8, 2006
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67. **Josephs J, Fleishman J, Lawrence P, Mathews WS, Moore RD, Gebo K for the HIV Research Network: Factors Associated with Pain in HIV-Infected Patients in a Multisite, Multistate HIV Cohort. #928 16th International AIDS Society Meeting, Toronto, Ontario August 13-18, 2006**
68. **Korthuis PT, Josephs J, Lawrence P, Mulvey K, Gebo K for the HIV Research Network: Substance Abuse Treatment among HIV infected Persons in the United States #THPE0735 16th International AIDS Society Meeting, Toronto, Ontario August 13-18, 2006**

Invited and or refereed local/regional meetings

1. Schuman P, Crane LR: Expression of the HIV Genome in Chorionic Villi of a 12 Week Pregnancy Detected by RT/PCR, Michigan Infectious Diseases Society Annual Meeting, University of Michigan Medical Center, Ann Arbor, MI April, 1990.
 2. Crane LR: Sentinel Hospital Surveillance for HIV Infection in the Detroit Medical Center, Michigan Infectious Diseases Society Annual Meeting, University of Michigan Medical Center, Ann Arbor, MI April, 1990.
 3. Schuman P, Crane LR, Kaufmann R, Philpot D: Pharmacokinetics of Zidovudine (ZDV) During Pregnancy, Michigan Infectious Diseases Society Annual Meeting, University of Michigan Medical Center, Ann Arbor, MI April 1990.
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