

Under the direction of Jeffrey Kahn, M.D., Ph.D., the [Division of Pediatric Infectious Disease](#) directs and manages two active in-patient infectious disease consultation services; one dedicated to general infectious diseases and the other dedicated to infections in the immunocompromised hosts. The Division has an active ambulatory service for children with infectious diseases, including a large clinic for HIV-infected and HIV-exposed children and adolescents at Children’s Medical Center. The Infection Control and Prevention Programs at two Children’s campuses (Dallas and Our Children’s House) are managed under the medical directorship of Michael Sebert, M.D.

The Division was established in the early 1960’s with one faculty member, John D. Nelson, M.D. Shortly thereafter, Dr. George McCracken joined the Division and the two managed the Division for decades, graduating more than 100 fellows, many of whom are currently leaders in academics and in the field of Infectious Diseases, making the fellowship program one of, if not the, longest standing and productive Pediatric Infectious Disease fellowship programs in the world. Drs. Nelson and McCracken were the founding editors for the *Pediatric Infectious Diseases Journal*, the top publication in the field of Pediatric Infectious Diseases. Currently, the Division has nine faculty members, five fellows, and several research and administrative support staff.



Jeffrey Kahn, M.D., Ph.D.
Division Chief

The Division provides an active infectious disease consultation service at Children's and other hospitals on the UT Southwestern campus, including Parkland Memorial Hospital and Clements University Hospital. Each year the Division provides consultation and care to more than 700 infants, children, adolescents, and young adults. Faculty care for patients with inherited or acquired immunodeficiency, including those receiving immunosuppressive therapy for cancer, organ transplantation, bone marrow, and stem cell transplantation, as well as patients with inflammatory bowel disease and rheumatologic disorders and a wide variety of classic, as well as unusual, infectious disease problems.

Division faculty members publish an average of 10-12 papers yearly in peer-reviewed journals and are actively engaged in clinically applied research involving the areas of:

- Molecular epidemiology of respiratory syncytial virus and activation of the innate immune system by RSV
- The link between pulmonary infection and asthma, specifically the role of dendritic cells in response to rhinovirus infection in the pathogenesis of asthma
- HIV/AIDS
- Malaria epidemiology, eradication and elimination
- Molecular biology and drug discovery for protozoan parasites
- Hepatitis E virus
- Infections in immunocompromised hosts
- Fungal infections
- Transplant Infectious Diseases
- Antimicrobial stewardship
- Outbreak investigations
- Innate immune response to neuroinvasive Flaviviruses

The Division is dedicated to the training of medical students, residents, and fellows. Since 1965, more than 100 physicians have completed training in the Division’s fellowship training program, and greater than 80 percent of them have academic appointments at universities and children’s hospitals worldwide.

Faculty

There are nine full-time faculty members in the Division of Pediatric Infectious Disease.

Honors / Awards

Best Pediatric Specialists in Dallas, *D Magazine*

- Natasha Hanners
- Jeffrey Kahn
- Michael Sebert
- Jeffrey McKinney
- Paul K. Sue

2020 Best Doctors - *D Magazine*

- Jeffrey McKinney

Michelle Gill

- Promotion to Professor

Michelle Hsiang

- Selected for WomenLift Leadership Fellow

Paul Sue

- Recipient, Summerfield G. Roberts Foundation Research Award

Invited Lectures

Natasha Hanners

- Internal Medicine Ground Rounds, UT Southwestern, Dallas, TX, September 2020
 - *"Type I Interferon Modulation of RNA virus Infections"*

Michelle Hsiang

- Pediatric Ground Rounds, UT Southwestern/Children's Health, Dallas, TX, May 2020
 - *"Malaria Elimination and Eradication: Finding and Treating Hidden Infections"*

Jeffrey McKinney

- Community Organization Resident Practicum Elective, Texas Scottish Rite Hospital, Dallas, TX, September 2020
 - *Physician Advocacy Leadership Development*
- SUCCESS (Starting University Clinical Careers Efficiently, Scholarly, and Successfully), Faculty Diversity and Development, UTSW, Dallas, TX, October 2020
 - *"Starting University Clinical Careers Efficiently, Scholarly, and Successfully (SUCCESS) - Professionalism"*

Dawn Wetzel

- University of Georgia, Parasitology Seminar Series, Athens, GA, January 2020
 - *"Targeting New Therapies for Trypanosomatids"*
- UT Southwestern Infectious Diseases Seminar, Dallas, TX, July 2020
 - *"Targeting New Therapies for Trypanosomatids"*

Conference Presentations

Almatrafi MA, Dassner AM, Slone T, Aquino V, **Sebert M.**

IDWeek (Virtual), October 2020

Poster presentation: *"Effect of cefepime prophylaxis on bacterial bloodstream infections in neutropenic patients with acute myelogenous leukemia"*

Gill M

American Academy of Allergy, Asthma & Immunology (AAAAI), Philadelphia, PA, March 2020

Symposium Invited Speaker, *"The Role of Biologics in Viral Infections and Asthma: Both Inception and Exacerbation"*

Kang Y, Aquino VM, Koh AY, **Wetzel D, Sue PK**

American Transplant Congress, Philadelphia, PA (Virtual), June 2020

Poster Presentation: *"Efficacy and Tolerability of Tedizolid Phosphate in the Treatment of Mycobacterium abscessus Infection Among Pediatric Hematopoietic Stem Cell Transplant Recipients"*

McKinney J

Children's Health 13th Annual Transfusion & Laboratory Medicine Conference, Dallas, TX, February 2020

"Salmonella: Contemporary Insights into Diagnostics and Disease"

Education and Training

The Division of Pediatric Infectious Disease provides educational opportunities for medical students and pediatric residents in addition to its accredited fellowship program.

Pediatric Infectious Diseases is a consultative service, in which faculty interact with all divisions in the department and assist in the management of children with a variety of underlying medical problems. Most consultations involve hospitalized patients, but there are general infectious disease and HIV/AIDS clinics in which patients are managed on an outpatient basis. Medical students can elect to work in these clinics under supervision of the fellows and faculty. The elective rotation is open to second-, third- and fourth-year medical students and pediatric residents, the latter being given more autonomy because of their greater clinical experience. Visitors from other medical schools and residency training programs are welcome.

The Infectious Diseases Service is an elective-only rotation among our house officers. Thus, we are pleased to consistently attract residents who self-select month-long training experiences in Infectious Diseases. Individualized by Amanda Evans, these blocks have allowed residents to choose among training exposures in our outpatient clinics, our general infectious diseases consult service, and our immunocompromised host clinical service. Residents consistently contribute to our division rounds, including via formal presentations of contemporary cases and new research findings. In addition, trainees interested in infectious diseases work with our colleagues in public health, in the bone marrow transplant unit, the clinical microbiology lab, and with our dedicated infectious diseases pharmacists. Resident scholarly projects have been mentored by our faculty, and we take pride in facilitating nationally competitive ID fellowship searches by our UT Southwestern resident cadre.

The Division of Pediatric Infectious Disease has a long tradition of training fellows in the subspecialty. Since 1965, more than 100 fellows from 28 countries have completed training in infectious diseases. Eighty percent are involved in teaching and research in university-affiliated medical centers.

Many graduates are leaders in the field of infectious diseases, and some have become division directors and department chairs or deans of medical schools.

The purposes of the training program are to provide a background in laboratory techniques of classical microbiology, immunology, and molecular biology, to provide experience in application of the scientific method to clinical and laboratory research, and to develop competence in diagnosis and management of infectious diseases. Clinical training is in the form of consultations, rounds, and conferences, and outpatient Infectious Disease and HIV Clinics.

Dr. Kahn serves as the Pediatric Infectious Disease Fellowship Program Director. All division faculty, each with specific clinical and research interests, actively participate in the training program. Each trainee is instructed in all relevant basic laboratory methods, including fundamentals of aerobic and anaerobic bacteriology, antibiotic susceptibility testing, antibiotic assays, serologic techniques, as well as state of the art molecular diagnostic assays such as Matrix-Assisted Laser Desorption Ionization Time-of-Flight Mass Spectrometry or MALDI-TOF.

Additionally, the fellows have ample opportunity to work with collaborators in molecular microbiology to acquire basic techniques such as PCR, microarray analyses, cloning, transcriptome analyses and purification of bacterial outer membrane components (e.g. endotoxin).

The trainee carries through one or more research protocols of his or her own design with supervision by the program directors and collaborators. This is tailored to the interests and capabilities of the individual trainee, either in basic laboratory experimentation or in clinical research.

The clinical experience at Children's Medical Center and on the neonatal service at Parkland Health & Hospital System and the newly opened Clements University Hospital is extensive. There are approximately 120,000 outpatient visits, 9,000 pediatric admissions, and 16,000 deliveries per year. A high proportion of these have infectious disease problems; therefore, trainees have the opportunity to see many common infections and most of the rarer disorders.

Infectious disease clinical rounds are conducted daily; there are outpatient clinics at least four days each week. The Division averages approximately 60 inpatient consultations monthly and 15-20 new outpatient consultations monthly.

The three-year fellowship training program aims to provide individuals with sufficient background to pursue a career of independent research, teaching, and managing patients with wide variety of pediatric infectious diseases.

Research Activities

Pediatric Infectious Disease faculty are actively engaged in numerous investigations that provide an invaluable opportunity to learn the most modern molecular biologic techniques and to apply these to common clinical problems in pediatrics. The Division has a long-standing history in clinic investigation and has published landmark papers in many areas including clinical trials of anti-inflammatory agents in bacterial meningitis, diagnostic studies using polymerase chain reaction (PCR) in congenital syphilis and pneumonia, and studies of endotoxin concentrations in body fluids of infants and children with meningococcal or Haemophilus meningitis and correlating these values with outcomes.

- Jeffrey Kahn's areas of scientific research include emerging pathogens, respiratory syncytial virus, nanotechnology-based viral diagnostics.
- Michelle Gill, whose research centers on evaluating the role of dendritic cells in pediatric respiratory viral infections and allergic disease, partners with the Division of Pediatric Allergy and Immunology to investigate the roles of dendritic cells, respiratory viruses and IgE-mediated allergy in asthma pathogenesis.
- Natasha Hanners' clinical and research interest is in viral encephalitis and the innate immune response in control on neuroinvasive viruses.
- Michelle Hsiang conducts malaria epidemiological and clinical research in low transmission areas of Africa and Asia to address the unique challenges of diagnosis, surveillance and treatment of individuals and populations in these settings.
- Dawn Wetzel focuses on host: pathogen interactions in, and drug development for, the parasitic infection leishmaniasis.

- Paul Sue’s research interests include the epidemiology and clinical outcomes of viral and fungal infections among pediatric transplant recipients, novel therapeutics including the role of fecal microbiota transplantation among children, and the role of microbiota diversity in the emergence of MDRO among immunocompromised hosts.

Research areas include:

- The link between pulmonary infection and asthma
- Malaria
- HIV/AIDS
- Immunogenetic profiles of children with various infections
- Respiratory syncytial virus
- Hepatitis E virus
- Innate immune response to Flaviviruses
- Infection Control and Prevention
- Infections in immunocompromised hosts
- Fungal infections
- Transplant Infectious Diseases

The Division has established collaborative research programs with members of the Departments of Microbiology and Immunology at UT Southwestern. The principle goals of these collaborative projects are:

- To delineate the molecular immunobiologic basis for the pathogenesis of certain infectious diseases in pediatrics
- To define and control the inflammatory processes involved in bacterial infections, such as bone and joint infections
- To develop the immunobiologic profiles of children with infectious diseases

Clinical Activities

The Division provides an active infectious disease consultation service at Children’s and other hospitals on the UT Southwestern campus including Parkland Memorial Hospital and Clements University Hospital. Each year, the Division provides consultation and care to more than 700 infants, children, adolescents, and young adults. Faculty care for patients with inherited or acquired immunodeficiency, including those receiving immunosuppressive therapy for cancer, organ transplantation, bone marrow, and stem cell transplantation, as well as patients with inflammatory bowel disease and rheumatologic disorders and a wide variety of classic as well as unusual infectious disease problems.

In addition to the infectious disease outpatient clinic and the infection control program at Children’s, the Division is responsible for directing:

- The AIDS-Related Medical Services Clinic (ARMS) under the leadership of Amanda Evans, M.D.
- The Infection Control Program under the leadership of Michael Sebert, M.D.
- The Solid Organ Transplant Infectious Diseases Clinic under the leadership of Paul Sue, M.D.
- Establishment of a new Congenital Infectious Disease Clinic, to address the increased rates of congenital infections, in particular congenital syphilis, under the leadership of Amanda Evans, M.D.

Patient Visits

Infectious Disease Patient Stats by Type of Visit By Year.

	2017	2018	2019	2020
Inpatient consultations	550	702	790	852
Inpatient follow up visits	2,000	2,457	2,370	
New Outpatient visits	520	383	448	
Follow-up outpatient visits	360	490	1,070	

Current Grant Support

Michelle Gill

Grantor: NIH NIAID Inner City Asthma Consortium 3 (ICAC3, UM1AI 114271)

Title of Project: Immunologic Approaches to Reduce Asthma

Role: Co-Investigator (PI: R Gruchalla)

Dates: 08/2014 – 07/2021

Grantor: NIH/NIAID Inner City Asthma Consortium 3

Title of Project: Mechanistic Study Development for ICAC3 MUPPITS and CoNAC Protocols

Role: Principal Investigator (NIAID ICAC3 Administrative Site: University of Wisconsin)

Dates: 08/2018 – 07/2021

Grantor: NIH/NIAID / Benaroya Research Institute at Virginia Mason Seattle

Title of Project: Immune Tolerance Network: Dendritic Cell and T Follicular Helper Cell Pilot Study for CATNIP/ITN057AD

Role: Principal Investigator

Dates: 02/2019 – 01/2020

Grantor: NIAID; Immune Tolerance Network (ITN); Benaroya Research Institute at Virginia Mason

Title of Project: Impact of Anti-TSLP and antigen-specific immunotherapy on Dendritic Cell and T follicular helper cells in individuals with cat allergy.

Role: Principal Investigator

Dates: 02/2020 - 01/2021

Grantor: NIAID; Immune Tolerance Network (ITN); Benaroya Research Institute at Virginia Mason

Title of Project: Thymic Stromal Lymphopoietin (TSLP) Bioactivity Pilot Study

Role: Principal Investigator

Dates: 02/2020 – 01/2021

Natasha Hanners

Grantor: NIH K08

Title of Project: Interferon-mediated Control of Neuropathogenic Flaviviruses

Role: Principal Investigator

Dates: 02/2019 – 01/2024

Michelle Hsiang

Grantor: The Bill and Melinda Gates Foundation

Title: Achieving Global Malaria Eradication through Accelerated Regional Elimination, Subproject 1.3: Evaluation of New, Highly Sensitive Point of Care Diagnostics for Asymptomatic Infections in Namibia

Role: Co-Principal Investigator (PI: Gosling)

Dates: 01/2017 – 12/2020

Grantor: NIH/NIAID K01

Title: Measuring Spillover Effects of Reactive, Focal Malaria Elimination Interventions

Role: Co-Mentor (PI: Jade Benjamin-Chung)

Dates: 06/2019 - 06/2023

Grantor: USAID (United States Agency for International Development)
Title of Project: IMPACT Malaria, Operational Research Technical Assistance to US President's Malaria Initiative-supported Countries
Role: Collaborator (Co-PI: Co-PI: Gosling, UCSF; Consortium PI: Orford, Population Services International)
Dates: 01/2018 – 12/2023

Grantor: Lampert Byrd Foundation
Title of Project: COVID-19 Pandemic Response and Resilience Initiative in low and middle income countries (LMICs)
Role: Principal Investigator
Dates: 07/2020-02/2021

Grantor: United States Agency for International Development (USAID)
Title of Project: INFORM, President's Malaria Initiative (PMI) Evaluation & Research-to-Use Implementation Project, subaward from UCSF and PATH
Role: Principal Investigator
Dates: 10/2020 - 9/2025

Grantor: USAID
Title of Project: IMPACT Malaria, Operational Research Technical Assistance to PMI; subaward from UCSF and Population Services International
Role: Principal Investigator
Dates: 04/2018 - 11/2022

Grantor: A128488 (Feachem and Gosling)
Title of Project: The Bill and Melinda Gates Foundation: Achieving Global Malaria Eradication through Accelerated Regional Elimination, Subproject 1.3.1.
Role: Co-Principal Investigator
Dates: 01/2017 - 12/2021

Jeffrey Kahn

Grantor: NIH / UT Dallas
Title of Project: Digital Nanobubble Biosensor for Point-of-Care Respiratory Syncytial Virus Detection
Role: Co-Investigator
Dates: 05/2018 – 04/2020

Grantor: NIH / UT Dallas
Title of Project: Rapid Diagnostic Test for Respiratory Syncytial Virus by Digital Nanobubbles
Role: Co-Investigator
Dates: 05/2020 – 04/2025

Grantor: DoD / UT Dallas
Title of Project: Ultrasensitive and Rapid Diagnosis of Influenza by Digital Nanobubbles on a Microwell Array Platform
Role: Principal Investigator
Dates: 03/2020 – 02/2022

Paul K. Sue

Grantor: Allovir Inc

Title of Project: Phase 3 Multicenter, Double-Blind, Placebo-Controlled Trial of Viralyim-M (ALVR105) for the Treatment of Patients with Virus-Associated Hemorrhagic Cystitis After Allogeneic Hematopoietic Cell Transplant)

Role: Principal Investigator

Dates: 12/2020 – 06/2021

Grantor: Gilead Sciences

Title of Project: A Phase 2/3 Open – label Study to Evaluate the Safety, Tolerability, Efficacy and PK of Remdesivir in Participants from Birth to < 18 years of age with COVID-19

Role: Principal Investigator

Dates: 06/2020 – 07/2021

Grantor: Merck, Sharpe & Dohme Corp

Title of Project: A Phase 2b, Open-Label, Single-Arm Study to Evaluate the Pharmacokinetics, Efficacy, Safety and Tolerability of Letermovir in Pediatric Participants From Birth to Less Than 18 Years of Age at Risk of Developing CMV Infection and/or Disease Following Allogeneic Haematopoietic Stem Cell Transplantation (HSCT)

Role: Principal Investigator

Dates: 05/2019 – 05/2021

Dawn Wetzel

Grantor: CCRAC/Children’s Clinical Research Advisory Committee

Title of Project: Role of Host Cells in Treatment-Resistant Pediatric Leishmaniasis

Role: Principal Investigator

Dates: 04/01/2018 – 03/31/2021

Grantor: Harrington Discovery Institute Scholar, Innovator Award

Title of Project: Developing Novel Antiparasitics That Affect Tubulin Dynamics

Role: Principal Investigator

Dates: 01/2019 – 12/2021

Grantor: NIH / National Institute of Allergy and Infectious Diseases (NIAID)

Title of Project: Targeting a New Therapy for Trypanosomatids

Role: Principal Investigator

Dates: 06/2019 – 05/2024

Journal Publications

1. Chow TG, Gill MA. [Regulation of allergic inflammation by dendritic cells.](#) *Curr Opin Allergy Clin Immunol.* 2020 Feb;20(1):56-63. PMID:31789871
2. Das BB, Prusty BK, Niu J, Sue PK. [Cytomegalovirus infection and allograft rejection among pediatric heart transplant recipients in the era of valganciclovir prophylaxis.](#) *Pediatr Transplant.* 2020 Dec;24(8):e13750. PMID:32573886
3. Dhar AV, Huang CJ, Sue PK, Patel K, Farrow-Gillespie AC, Hammer MR, Zia AN, Mittal VS, Copley LA. [Team Approach: Pediatric Musculoskeletal Infection.](#) *JBS Rev.* 2020 Mar;8(3):e0121. PMID:32224640

4. **Hsiang MS**, Ntuku H, Roberts KW, Dufour MK, Whittemore B, Tambo M, McCreesh P, Medzihradsky OF, Prach LM, Siloka G, Siame N, Gueye CS, Schrubbe L, Wu L, Scott V, Tessema S, Greenhouse B, Erlank E, Koekemoer LL, Sturrock HJW, Mwilima A, Katokele S, Uusiku P, Bennett A, Smith JL, Kleinschmidt I, Mumbengegwi D, Gosling R. [Effectiveness of reactive focal mass drug administration and reactive focal vector control to reduce malaria transmission in the low malaria-endemic setting of Namibia: a cluster-randomised controlled, open-label, two-by-two factorial design trial.](#) *Lancet.* 2020 Apr 25;395(10233):1361-1373. PMID:32334702
5. **Hsiang MS**, Ntshalintshali N, Kang Dufour MS, Dlamini N, Nhlabathi N, Vilakati S, Malambe C, Zulu Z, Maphalala G, Novotny J, Murphy M, Schwartz A, Sturrock H, Gosling R, Dorsey G, Kunene S, Greenhouse B. [Active Case Finding for Malaria: A 3-Year National Evaluation of Optimal Approaches to Detect Infections and Hotspots Through Reactive Case Detection in the Low-transmission Setting of Eswatini.](#) *Clin Infect Dis.* 2020 Mar 17;70(7):1316-1325. PMID:31095677
6. Jackson DJ, Bacharier LB, Calatroni A, **Gill MA**, Hu J, Liu AH, Wheatley LM, Gern JE, Gruchalla RS, Khurana Hershey GK, Kattan M, Kercksmar CM, Kim H, O'Connor GT, Patel S, Pongracic JA, Wood RA, Busse WW. [Serum IL-6: A biomarker in childhood asthma?](#) *J Allergy Clin Immunol.* 2020 Jun;145(6):1701-1704.e3. PMID:32004524
7. Montiel-Esparza R, Reys B, Rogers ZR, **Evans AS**, Wysocki CA, Timmons C, Dickerson KE. [Connecting the Dots From Fever of Unknown Origin to Myelodysplastic Syndrome: GATA2 Haploinsufficiency.](#) *J Pediatr Hematol Oncol.* 2020 Jul;42(5):e365-e368. PMID:31033783
8. Most ZM, Lieu T, Filkins L, Nicolaides R, Rakheja D, Gelfand A, **Kahn J.** [Disseminated Nannizziopsis Infection in an Adolescent With a STAT1 Mutation.](#) *Open Forum Infect Dis.* 2020 Sep;7(9):ofaa390. PMID:33005702
9. Pfaender S, Mar KB, Michailidis E, Kratzel A, Boys IN, V'kovski P, Fan W, Kelly JN, Hirt D, Ebert N, Stalder H, Kleine-Weber H, Hoffmann M, Hoffmann HH, Saeed M, Dijkman R, Steinmann E, Wight-Carter M, McDougal MB, **Hanners NW**, Pöhlmann S, Gallagher T, Todt D, Zimmer G, Rice CM, Schoggins JW, Thiel V. [LY6E impairs coronavirus fusion and confers immune control of viral disease.](#) *Nat Microbiol.* 2020 Nov;5(11):1330-1339. PMID:32704094
10. Rowe RK, Pyle DM, Farrar JD, **Gill MA.** [IgE-mediated regulation of IL-10 and type I IFN enhances rhinovirus-induced Th2 differentiation by primary human monocytes.](#) *Eur J Immunol.* 2020 Oct;50(10):1550-1559. PMID:32383224
11. Sheehan WJ, Krouse RZ, Calatroni A, Gergen PJ, Gern JE, **Gill MA**, Gruchalla RS, Khurana Hershey GK, Kattan M, Kercksmar CM, Lamm CI, Little FF, Makhija MM, Searing DA, Zoratti E, Busse WW, Teach SJ, NIAID-sponsored Inner-City Asthma Consortium. [Aeroallergen Sensitization, Serum IgE, and Eosinophilia as Predictors of Response to Omalizumab Therapy During the Fall Season Among Children with Persistent Asthma.](#) *J Allergy Clin Immunol Pract.* 2020 Oct;8(9):3021-3028.e2. PMID:32376491
12. Ullah I, Sharma R, Mete A, Biagini GA, **Wetzel DM**, Horrocks PD. [The relative rate of kill of the MMV Malaria Box compounds provides links to the mode of antimalarial action and highlights scaffolds of medicinal chemistry interest.](#) *J Antimicrob Chemother.* 2020 Feb 1;75(2):362-370. PMID:31665424
13. Ullah I, Gahalawat S, Booshehri LM, Niederstrasser H, Majumdar S, Leija C, Bradford JM, Hu B, Ready JM, **Wetzel DM.** [An Antiparasitic Compound from the Medicines for Malaria Venture Pathogen Box Promotes Leishmania Tubulin Polymerization.](#) *ACS Infect Dis.* 2020 Aug 14;6(8):2057-2072. PMID:32686409

14. Wu SL, Mertens AN, Crider YS, Nguyen A, Pokpongkiat NN, Djajadi S, Seth A, **Hsiang MS**, Colford JM Jr, Reingold A, Arnold BF, Hubbard A, Benjamin-Chung J. Substantial underestimation of SARS-CoV-2 infection in the United States. *Nat Commun*. 2020 Sep 9;11(1):4507. PMID:32908126

Book Chapter

1. Paulsen G, **Sue PK**. (2020) Nocardia and Actinomycosis. In: Steinbach, Michaels and Fisher (Ed.). *Pediatric Transplant and Oncology Infectious Diseases*. New York NY Elsevier