

Career development pathway program

Our program has a long track record of training successful ID physicians, and with providing them the essential building blocks for any desired career path within the field.

The program provides opportunities for excellence in the career path of your choice with a customizable, adaptable career development program with a menu of options in numerous areas that can supplement and augment your clinical and research training.

These pathways give you the flexibility to explore during your fellowship for your ideal ID career. Fellows are able to pick and choose from the menu of options, but also change between pathways as they evolve and develop their interests throughout fellowship.

Clinical pathways included in this packet:

1. Antibiotic Stewardship, Healthcare epidemiology, Public Health
2. HIV
3. Orthopedic infections
4. Transplant ID
5. Community ID pathway
6. Research pathway

Rush alumni have not only gone on to careers in academic centers, community settings and in research, but also has a large network of alumni in public health departments, clinical microbiology, private practices across the nation, in pharmaceutical industry, and at the FDA. This program aims to help assist fellows to develop the career of their choice.

Healthcare Epidemiology, Infection Prevention, Public Health and Antibiotic Stewardship Pathway

Our strong relationship with the Chicago Department of Public Health as well as Cook County Department of Public Health, our designation as an IDSA antimicrobial stewardship Center of Excellence site, and our expertise in infection control through quality improvement and federally-funded research lends naturally for formalized training for leadership in antibiotic stewardship, epidemiology and infection prevention.

Fellows will develop core competencies in these areas through working with mentors and as part of the antibiotic stewardship and infection prevention teams. All fellows receive basic training in antibiotics stewardship, healthcare epidemiology, infection control and prevention and public health. Fellows with a specific interest may further pursue work within this pathway program.

| Track | Core Faculty Leadership/Mentors | Menu options |
|---|---|---|
| Healthcare Epidemiology/Infection Control | Mary Hayden John Segreti Michael Lin Kyle Popovich Yoona Rhee Carlos Santos Stefan Green Sharon Welbel | 1.) Identification of mentor, quarterly meetings with mentor to discuss career goals 2.) ASP rotation (2 week block) 3.) Infection Control rotation (2 week block) 4.) Public Health rotation (2 week block) 5.) Attendance at infection control meetings |
| Antibiotic Stewardship (ASP) | Sarah Won Shivanjali Shankaran | 6.) Attendance at antibiotic stewardship meetings 7.) Attendance at patient safety/quality meetings |
| Public Health | Stephanie Black (CDPH) Do Young Kim (CDPH) Ron Lubelcheck (Cook County Health-TB) | 8.) Formal coursework in epidemiology and biostatistics through a Master of Science in Clinical Research 9.) Development of ASP/Healthcare Epidemiology project to be presented at formal meeting |

Clinical:

We offer clinical electives in 1.) Public Health 2.) Infection Control 3.) Antibiotic stewardship. See below for details of each focused elective

Education: All fellows should participate in the Society for Healthcare Epidemiology and Prevention (SHEA) fellows online course and complete the IDSA Antibiotic Stewardship Program (ASP) basic / advance coursework. Fellows should attend the SHEA Annual fellows course in Hospital Epidemiology and Infection Control and/or the SHEA/CDC training course in Healthcare Epidemiology.

In addition to didactic and meeting time during your ASP rotation, the public health and the infection control rotation, fellows will have longitudinal opportunities all year long to attend infection control, antibiotic stewardship, patient safety and quality meetings

Formal coursework in epidemiology and biostatistics is available through a Master of Science in Clinical Research. Coursework can be audited or taken for credit for the Masters. A formal Masters in Public Health is available to fellows through neighboring University of Illinois.

Mentorship: Fellows will identify a mentor and will meet quarterly to discuss career goals and process. (see potential mentors listed above)

Research opportunities: Fellows should discuss research opportunities with their mentor. Numerous opportunities exist within the CDC funded Chicago prevention Epicenter research group, Chicago Department of Public Health, and the Regional Innovative Public Health lab (a partnership between CDPH and Rush that is an advanced flexible molecular laboratory able to surveille and characterize pathogens of public health importance.

Fellows who are interested in academic careers in public health, infection prevention or healthcare epidemiology are encouraged to apply for the funded 3rd year of research with the CDC-funded Chicago Prevention and Intervention Epicenter research group.

Focused electives

Public health: We offer a 2 week elective with the Chicago Department of Public Health lead by Dr Stephanie Black, Medical Director of CDPH, Do Young Kim, MD (co Medical Director of Healthcare associated Infections) and Janna Kerins (former EIS officer, Co

Director of Communicable Disease Program). Opportunities to respond to emerging public health threats including initial *C. auris* cases, mucormycosis investigations, pandemic response, MDRO containment, Monkeypox responses and much more.

In addition, during this two week block, you will rotate in the CCH TB clinics including time in suburban TB clinics. During this block are opportunities to participate in infection control conferences, Hospital Epidemiology meetings and antibiotic stewardship meetings as well

Example Public Health Rotation Schedule

| Monday | Tuesday | Wednesday | Thursday | Friday |
|----------------------------|--|------------------------------|-----------------------------|-----------------------------|
| Introduction to CDPH staff | TB clinic (Suburban Clinic) CDPH | CDPH ASP Meeting | ID Grand Rounds CDPH | Meeting for HAI CDPH |
| Monday | Tuesday | Wednesday | Thursday | Friday |
| CDPH | CDPH Infection Control meeting (Rush) | TB clinic ASP Meeting | ID Grand Rounds CDPH | CDPH |

Program Goals for all clinical rotations

1. Provide training in public health, healthcare epidemiology, infection control and prevention concepts and processes to prepare ID Fellows to respond effectively to routine infection prevention questions and problems.

Fellow Goals

1. Demonstrate and apply knowledge of healthcare epidemiology to the individual, facility-level and population-level care of patients with infectious diseases.
2. Understand concepts related to identification and surveillance of healthcare-associated infections (HAIs) and multidrug-resistant organisms (MDROs); infection prevention strategies, outbreak detection and investigation; patient safety in this context.
3. Demonstrate an awareness of and responsiveness to the larger context and system of health care, as well as the ability to call effectively on other resources in the system to provide optimal individual, facility-level and population-level health care.
4. Understand the role of the clinical microbiology laboratory in hospital infection prevention, including detection of reportable pathogens and pathogen clusters;

identification of unusual antimicrobial susceptibility; availability, use, performance characteristics, and cost of microbial screening tests (culture and molecular methods); availability, use, performance characteristics, and cost of genomic fingerprinting methods, e.g. whole genome sequencing.

5. Demonstrate interpersonal and communication skills that result in the effective exchange of information and teaming with patients, their families, professional associates, public health authorities and regulatory officials.

Objectives for Public Health rotation

- 1 Understand and apply surveillance measures for HAIs, and emerging public health threats
- 2 Identify HAIs and describe prevention strategies
- 3 Participate in the care of TB patients
- 4 Participate in city wide HAI infection control meetings
- 5 Understand the goals, functions and structure of public health entities
- 6 Understand and apply measure to report and control epidemics
- 7 Understand and appreciate the population basis for public health services

Infection Control Focus: We offer a two week infection control elective led by Hospital Epidemiologist/Infection Control specialist who leads a team of physicians and IC preventionists. During this week, fellows will attend infection control meetings, antibiotic stewardship meetings, and patient safety/quality meetings. They will participate in journal club

Goals and Objectives: See Program Goals above

Objectives for Infection Control Rotation

1. Participate in daily surveillance activities for HAIs
2. Identify HAIs and describe prevention strategies
3. Participate in OR rounds 3 X per week
4. Participate in high level disinfection/sterilization process
5. Participate in NHSN reporting/risk assessment activities
6. Participate in exposures/outbreak investigations including working with partners in the institution
7. Participate in journal club once in 2 week block

Example of IC rotation

| Monday | Tuesday | Wednesday | Thursday | Friday |
|--|--|--|--|--|
| Introduction to IC team | HAI meeting | Micro rounds | ID Grand Rounds | One on one meeting with mentor (Dr Mike Lin) |
| Micro rounds | High level disinfection/sterilization | OR rounds | | |
| OR rounds | Daily IC/HE surveillance for CLABSI, CAUTI, C diff etc | ASP Meeting | Daily IC/HE surveillance for CLABSI, CAUTI, C diff etc | OR rounds |
| Daily IC/HE surveillance for CLABSI, CAUTI, C diff etc | | Daily IC/HE surveillance for CLABSI, CAUTI, C diff etc | | Daily IC/HE surveillance for CLABSI, CAUTI, C diff etc |
| Monday | Tuesday | Wednesday | Thursday | Friday |
| Micro Rounds | IC meeting (monthly? Timing) | Micro rounds | ID Grand Rounds | One on one meeting with mentor |
| OR rounds | Daily IC/HE surveillance for CLABSI, CAUTI, C diff etc | OR rounds | | |
| Daily IC/HE surveillance for CLABSI, CAUTI, C diff etc | | ASP Meeting | Daily IC/HE surveillance for CLABSI, CAUTI, C diff etc | OR rounds |
| | | Daily IC/HE surveillance for CLABSI, CAUTI, C diff etc | | Daily IC/HE surveillance for CLABSI, CAUTI, C diff etc |
| | | Journal Club | | |

Antibiotic stewardship: We offer a 2 week antibiotic stewardship rotation led by a multidisciplinary team of physicians and pharmacist that provides fellows with opportunities to conduct antibiotic stewardship interventions, prioritize patient safety, and promote the judicious and optimal use of antimicrobials. Principles around stewardship metrics, antimicrobial formulary management, therapeutic interchange, information technology, and reducing adverse drug events will be reviewed. The fellow will review clinical trials of pharmaceutical agents and stewardship literature and identify strategies for application at RUMC. Selected topics include (but are not limited to) the following.

| Antimicrobial Stewardship Program (ASP) Physician | ASP Pharmacists | Microbiology Lab | Infection Control (IC) |
|---|--|--|---|
| <ul style="list-style-type: none"> • Role of ASP leader • Principles of ASP • Dissemination of information and creating change • Antimicrobial resistance | <ul style="list-style-type: none"> • Role of pharmacy • Formulary management • PK/PD and dose optimization • Metrics and benchmarking • Technological support | <ul style="list-style-type: none"> • Role of microbiology lab • Antibigram interpretation • Selective reporting of antibiotic susceptibility results • Newer diagnostics | <ul style="list-style-type: none"> • Role of IC • Outbreak investigation • Surveillance and Control of Healthcare Acquired Infections • Epidemiology and control of multidrug-resistant organisms and <i>Clostridium difficile</i> • Sterilization & Disinfection • Change management |

Example ASP Rotation Schedule

| Monday | Tuesday | Wednesday | Thursday | Friday |
|---|---|---------------------------------|---|--|
| Introduction to antimicrobial stewardship (ASP Pharm) Review restricted agents, bacteremia | Prospective audit-feedback (FQs), bacteremia [SW] | Micro rounds ASP Meeting | ID Grand Rounds Prospective audit-feedback, bacteremia (FQs) | Topic: Role of pharmacy in ASP Review restricted agents, bacteremia |
| Monday | Tuesday | Wednesday | Thursday | Friday |
| Topic: Role of infection control in ASP | Topic: Role of microbiology in ASP | Micro rounds ASP Meeting | ID Grand Rounds – In service (if applicable) | Topic: PK/PD Optimization [ASP pharm] |

| | | | | |
|--------------------------------------|--|--|--|-----------------|
| Review restricted agents, bacteremia | Prospective audit-feedback (FQs), bacteremia [ASP Pharm] | | Prospective audit-feedback (FQs), bacteremia [ASP Pharm] | ASP Project due |
|--------------------------------------|--|--|--|-----------------|

Goals and Objectives

See Program Goals above

Objectives for ASP rotation

- 1 Diagnose efficiently common Infectious Diseases problems in the realm of antibiotic stewardship, infection prevention and healthcare epidemiology
- 2 Evaluate patient medical records for appropriateness of antibiotic stewardship and infection control practices
- 3 Recognize the indication, usage and major side effects of commonly used antibiotics and provide effective antibiotic stewardship
 - a. Work effectively as a member within the interprofessional team (nursing, pharmacy, primary services, advance practice providers, radiology, infection prevention staff) to ensure safe patient care
- 4 Understand the relationship between Infection Prevention and Infectious Disease in varied healthcare settings
- 5 Become familiar with Pharmacy and Therapeutics committees and the role of the ID physician

- 6 Become familiar with the skills needed to lead= antibiotic stewardship and infection prevention teams

Example ASP Rotation Schedule

| Monday | Tuesday | Wednesday | Thursday | Friday |
|--|---|--|---|---|
| <p>Introduction to antimicrobial stewardship (ASP Pharm)</p> <p>Review restricted agents, bacteremia</p> | <p>Prospective audit-feedback (FQs), bacteremia [SW]</p> | <p>Micro rounds</p> <p>ASP Meeting</p> | <p>ID Grand Rounds</p> <p>Prospective audit-feedback, bacteremia (FQs)</p> | <p>Topic: Role of pharmacy in ASP</p> <p>Review restricted agents, bacteremia</p> |
| Monday | Tuesday | Wednesday | Thursday | Friday |
| <p>Topic: Role of infection control in ASP</p> <p>Review restricted agents, bacteremia</p> | <p>Topic: Role of microbiology in ASP</p> <p>Prospective audit-feedback (FQs), bacteremia [ASP Pharm]</p> | <p>Micro rounds</p> <p>ASP Meeting</p> | <p>ID Grand Rounds – In service (if applicable)</p> <p>Prospective audit-feedback (FQs), bacteremia [ASP Pharm]</p> | <p>Topic: PK/PD Optimization [ASP pharm]</p> <p>ASP Project due</p> |

HIV pathway

The Rush/CCH ID fellowship incorporates HIV experiences throughout the clinical curriculum. In addition to these core curriculum requirements, additional clinical and research opportunities are available to fellows with an interest in HIV.

We have numerous faculty with clinical expertise in different areas of HIV infection, including:

- HIV prevention - Drs. Gregory Huhn, Temitope Oyedele, Audrey French, Monica Mercon, Sybil Hosek, Shivanjali Shankaran
- HIV and hepatitis - Drs. Monica Mercon, Gregory Huhn
- HIV and women - Drs. Beverly Sha, Mariam Aziz, Audrey French
- HIV and children - Dr. Mariam Aziz
- HIV and adolescents -Dr. Temitope Oyedele
- HIV and correctional healthcare -Dr. Chad Zawitz
- HIV and sexually transmitted infections -Dr. Sabrina Kendrick
- HIV-related comorbidities - Drs. Sheila Badri, Gregory Huhn, Audrey French
- HIV and microbiome - Dr. Brett Williams

Clinical: CCH HIV wards. Fellows manage complications of HIV infection and opportunistic infections on an HIV consult service at Stroger hospital. They supervise a multidisciplinary team of housestaff, pharmacists, physician assistants and social workers to provide state-of-the-art care to this complex patient population

The Ruth M. Rothstein CORE Center is the principal public safety net HIV clinic in the Chicago metropolitan area. The CORE Center serves one-third of the HIV patients and the majority of the women with HIV, which is about 5000 unduplicated HIV infected patients. ID fellows have their continuity clinics housed here

The Mark Weiss Memorial Clinic for Infectious Diseases at RUMC has a census of approximately 700 HIV-infected individuals. Trainees participate in the care of these patients on their outpatient rotations.

Elective rotations are available at the Cook County Jail, one of the largest single-site correctional facilities in the United States. Cermak Health Services provides comprehensive infectious diseases care to a population of six to ten-thousand detainees on any given day. ID fellows can choose to spend time with the Medical Special Care Unit, Opiate/Detox programs, Urgent Care, and other correctional clinical settings.

Opportunities to do additional elective rotation time in the HIV clinics including women’s clinic and pediatrics clinic or other subspecialty clinics are available.

Education: The HIV pathway will be a longitudinal pathway that will be spread out over both years of fellowship. Fellows will touch base with a mentor early in their fellowship so that the pathway can be planned around their service time. Fellows will work with their mentors in the development of scholarly activity/research projects if interested.

| Pathway | Mentors | Menu Options |
|-------------|--|---|
| HIV pathway | Rush: Dr. Sha Dr. Shankaran Dr. Aziz Stroger/CORE Dr Huhn | <ol style="list-style-type: none"> 1. Identify mentor that will meet at least quarterly to discuss projects and career development. 2. Attend meetings with Blake Max, Pharm D and CORE center physicians for genotypic resistance interpretation sessions 3. Attend IAS HIV meeting 4. Attend Conference on retroviruses and Opportunistic Infections 5. Participate in weekly ACTG site meetings 6. Assist in the update and development of HIV specific protocols and hospital guidelines 7. Develop and present a research project in HIV (at national meetings ie CROI) |

While not limited to these projects and independently developed projects are encouraged, funded research projects that provide opportunities to research for fellows involvement includes:

| NIH-sponsored | Pharmaceutical Trials | Observational Studies | HIV prevention |
|----------------------------------|--------------------------------------|---|---|
| AIDS Clinical Trial Group—Dr Sha | Hepatitis C treatment trials—Dr Huhn | Chicago Women’s Interagency HIV study—Dr French/Shu | Adolescent Trials Network PreP studies—Dr Hosek |

| | | | |
|--|-----------------------------------|---|---|
| International Maternal Pediatric Adolescent AIDS Clinical Trials Group--Dr Aziz | HIV treatment trials—Dr Lubelchek | Multicenter AIDS Cohort Study –Dr Badri | ATEAM (R01)—Digital sensor for PreP usage—Dr Huhn |
| Division of Microbiology and Infectious Diseases STI Clinical Trials Network—Dr French | | | HPTN—injectable cabotegravir—Dr Oyedele |
| National Institute of Drug Abuse Clinical Trials Network—Dr Vergara | | | |
| HOPE in Action Multicenter Kidney Study—Dr Santos | | | |

Goals and Objectives

Goals

1. Provide patient care that is compassionate, appropriate, and effective for the treatment of HIV
2. Demonstrate knowledge of established and evolving clinical, epidemiological, and laboratory sciences, as well as the application of this knowledge to the care of patients with HIV in an inpatient and outpatient setting.
3. Must demonstrate an awareness of and responsiveness to the larger context and system of health care, as well as the ability to call effectively on other resources in the system to provide optimal health care.
4. Must demonstrate interpersonal and communication skills that result in the effective exchange of information and teaming with patients, their families, and professional associates
5. Must demonstrate a commitment to carrying out professional responsibilities and an adherence to ethical principles.

Objectives

1. Diagnose efficiently common HIV related complications and opportunistic infections
2. Evaluate HIV patients in an outpatient setting
3. Participate in clinical decision making for HIV infected patients
4. Recognize the indication, usage and major side effects of antiretroviral therapy and other antimicrobials typically used in management of HIV infection.
5. Complete the development of and present a research project in HIV (at national meetings ie CROI)

Orthopedic ID pathway

Midwest Orthopedics is a multispecialty group made up of surgical, research, and clinical consultants and is ranked #1 for orthopedic care in Illinois and #5 in the nation by U.S. News and World Report in 2020. Rush University Infectious Diseases has provided close consultation to their orthopedic and spine physicians through many years. The Orthopedic Infectious Diseases Group specializes in the prevention and treatment of bone and joint infections, including those patients who have undergone joint replacement or bone-related or soft tissue surgery.

Clinical: In addition to providing inpatient consultation on complicated orthopedic infections, fellows will work with the orthopedic ID attendings (Drs. Hernandez-Guarin, Won and Segreti) and APPs in managing outpatient IV antibiotics and making decisions on suppressive antibiotic use. They will have the opportunity to participate in weekly Orthopedic and OPAT rounds where these patients will be discussed in multidisciplinary rounds. Fellows will also be able to work closely with the microbiology lab to learn about specific diagnostics used in the diagnosis of orthopedic infection.

Education: The orthopedic pathway will be a longitudinal pathway that will be spread out over both years of fellowship. Fellows will touch base with a mentor early in their fellowship so that the track can be planned around their service time. Fellows will work with their mentors in the development and update of orthopedic infection treatment guidelines. They will have the opportunity to present these guidelines and research topics related to diagnosis, treatment, and prevention of orthopedic infections at ID grand rounds. They will also be able to present important orthopedic ID research papers at Journal Club. Fellows will be able to focus on orthopedic ID topics when teaching residents and fellows at the three times a week fellow teaching sessions.

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| Pathway | Mentors | Menu Options |
|---------|---------|--------------|

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|---------------------|--|---|
| Orthopedic ID track | Dr. Hernandez-Guarin Dr. Won Dr. Segreti Contact person Dr. Hernandez-Guarin 312-563-6208 Dr. Won: 312-942-4844 | 8. Staff orthopedic outpatients with their mentors as well as clinic with Dr. Segreti and others 9. Orthopedic/OPAT rounds on Wednesdays with mentors, APPs and home health nurses. 10. Develop/update orthopedic ID treatment guidelines for Rush ID 11. Present guidelines at ID grand rounds 12. Present guidelines to Midwest Orthopedics under the aegis of Antimicrobial Stewardship 13. Present at least 2 important Orthopedic ID research papers at ID grand rounds or Journal Club |
|---------------------|--|---|

The fellow should reach out to Orthopedic ID mentors by December of their first year. They will then work with their mentors to identify the weeks that they will attend Antimicrobial stewardship (AMS) meetings as well as Orthopedic/OPAT rounds. They will also identify days they will be able to present orthopedic specific AMS principles to Midwest Orthopedics. They will choose the treatment guidelines they will develop or update with a mentor. They will identify clinic days when they will staff Orthopedic OPAT patients.

Goals and Objectives

Goals

1. Provide patient care that is compassionate, appropriate, and effective for the treatment of orthopedic infectious diseases
2. Demonstrate knowledge of established and evolving clinical, epidemiological, and laboratory sciences, as well as the application of this knowledge to the care of patients with orthopedic Infectious diseases in an inpatient and outpatient setting.
3. Must demonstrate an awareness of and responsiveness to the larger context and system of health care, as well as the ability to call effectively on other resources in the system to provide optimal health care.
4. Must demonstrate interpersonal and communication skills that result in the effective exchange of information and teaming with patients, their families, and professional associates
5. Must demonstrate a commitment to carrying out professional responsibilities and an adherence to ethical principles.
6. Complete one Orthopedic infection treatment guideline: development or update with literature

Objectives

1. Diagnose efficiently common orthopedic Infectious Diseases problems as a part of current general Infectious diseases rounds.
2. Evaluate ID patients in an outpatient setting, making decisions on management of IV or oral antibiotics as well as need for surgical intervention
3. Participate in clinical decision making for orthopedic OPAT
4. Work effectively with mentors as well as with orthopedics in developing comprehensive management plans for patients with orthopedic infections.
5. Recognize the indication, usage and major side effects of IV and oral antibiotics typically used in management of orthopedic infections.
6. Work effectively with mentors, APPs and home health nurses to assure appropriate transition of care of orthopedic patients from inpatient to outpatient setting.
7. Become familiar with the process of literature search and decision making involved in development of guidelines
8. Complete the development or update of one Orthopedic infection treatment guideline
9. Present at least 2 important orthopedic infection papers at ID grand rounds or journal club. Consider completion of one QI project in this topic

Transplant and Malignant Hematology Infectious Diseases Pathway

Rush University Infectious Diseases has a robust solid organ and bone marrow transplant (BMT) infectious diseases (ID) program. Transplant ID physicians are closely involved in the management of complicated infections in these high risk patients. This pathway will provide fellows an opportunity to focus on the prevention, diagnosis, and management of transplant infections while working with a multidisciplinary patientcare team.

Clinical As a routine part of their fellowship, fellows work one-on-one with transplant ID attendings on the Transplant/Malignant Hematology service. This pathway will provide additional exposure for fellows wanting to specialize in this field. This longitudinal experience lasts the duration of fellowship. In addition to inpatient service, fellows will have the opportunity to work with the Transplant ID attendings (Drs. Santos, Rhee, and Forrest) in the outpatient setting as well. Fellows will also have additional didactic and research opportunities on this pathway.

Education: Fellows will work with their mentors to incorporate transplant and malignant hematology ID into outpatient practice. They will also attend solid organ transplant and BMT meetings. They will be expected to complete at least one research project related to the track and submit for presentation or publication by the end of their fellowship.

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| Pathway | Mentors | Menu Options |
|---------|---------|--------------|

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|---|---|--|
| <p>Transplant and Malignant Hematology ID</p> | <p>Dr. Santos Dr. Rhee Dr. Forrest</p> <p>Contact person Dr. Rhee/Santos Yoona_Rhee@rush.edu Carlos_A_Santos@rush.edu</p> | <ol style="list-style-type: none"> 1. Staff transplant and malignant hematology ID outpatients with transplant ID physician mentors 2. Attend various solid organ transplantation meetings to include listing, quality, RCA, case review 3. Attend BMT journal club 4. Develop/update transplant and malignant hematology ID-related guidelines for Rush ID 5. Present guidelines, cases, research, and literature review at ID grand rounds 6. Develop antimicrobial stewardship and infection control guidelines for immunocompromised hosts 7. Complete at least one research project by the end of the fellowship 8. Present at least 2 significant papers at journal club or ID grand rounds. 9. Lead and organize transplant and malignant hematology ID case reviews |
|---|---|--|

Pathway Enrollment:

The fellow should meet with their Transplant ID mentor by December of their first year. A curriculum should be planned together with concrete time lines for completion of goals and objectives. This includes identifying meetings to attend, specific guidelines to revise, and a concrete research project.

Goals and Objectives

Goals

1. Provide patient care that is compassionate, appropriate, and effective for the treatment of infectious diseases in immunocompromised patients.
2. Demonstrate knowledge of established and novel clinical, epidemiological, and laboratory sciences, as well as the application of this knowledge to the care of transplant or hematology patients with infectious diseases in an inpatient and outpatient setting.

3. Demonstrate an awareness of and responsiveness to the larger context and system of health care. Develop the ability to effectively use other resources in the system to provide optimal health care.
4. Demonstrate interpersonal and communication skills that result in the effective exchange of information and teaming with patients, their families, and professional associates
5. Demonstrate a commitment to carrying out professional responsibilities with an adherence to ethical principles.

Objectives

1. Diagnose common solid organ, bone marrow transplant and malignant hematology infectious diseases problems.
2. Evaluate immunocompromised ID patients in an outpatient setting, making decisions on management and treatment
3. Participate in clinical decision making during listing and quality meetings.
4. Work effectively with mentors within multidisciplinary teams to formulate comprehensive management plans for immunocompromised patients with infections.
5. Recognize the indication, usage, and major side effects of IV and oral antimicrobials typically used in the management of immunocompromised patients with infections
6. Become familiar with the process of literature search and decision making involved in development of guidelines
7. Complete one Transplant ID or Hematology ID specific treatment guideline: development or update with literature
8. Present at least 2 significant papers at ID grand rounds or journal club during the course of this track.
9. Complete one research project prior to completion of fellowship

Community ID pathway

Rush University Infectious Diseases has a close relationship with Metro Infectious Disease Consultants (MIDC), the largest private ID practice in the country, with 100 physicians of which 30 are our former fellows. The goal of this track is to familiarize fellows with community infectious diseases practice, including billing practices and business strategies.

Clinical: There are opportunities to work in a 2-4-week clinical rotation with private practitioners in MIDC's outpatient and inpatient settings. Fellows will also have the opportunity to attend regularly scheduled Antibiotic stewardship meetings, Infection control meetings, pharmacy & Therapeutics meetings at different partnering institutions throughout the year. Also available will be a longitudinal

experience with the outpatient antibiotic therapy (OPAT) clinic at Rush through optional weekly multidisciplinary meetings.

Education: Didactic workshops will include contract negotiations, billing tutorials, conflict resolution and business ethics. COVID-19 case conference weekly and MIDC Journal club monthly will provide additional educational opportunities.

Mentorship: Fellows will identify a mentor and will meet quarterly to discuss career goals and administrative processes (e.g., interview skills, contracts)

| Pathway | Core Faculty Leadership/Mentors | Menu options |
|--------------|--|---|
| Community ID | Russ Petrak Dana Vais David Hines Contact person: Dana Vais: 312 451 8681 David Hines: 708 2675903 | 1.) 2-4 week clinical rotation with MIDC physician(s) 2.) OPAT rounds M 3.) Outpatient clinic follow up experience MIDC 4.) LTACH/Wound care experience 5.) OPAT multidisciplinary meetings at Rush 6.) Billing tutorial (online) 7.) Contract negotiation didactics (online) 8.) Conflict resolution didactics (online) 9.) Business ethics didactics (online) 10.) Journal club/scholarly activity 11.) ASP, IC, PNT meetings at community partner institutions 12.) COVID-19 conference weekly (online) 13.) Quarterly meetings with identified mentor to discuss career goals |

Goals and Objectives

Goals

2. Provide patient care that is compassionate, appropriate, and effective for the treatment of Infectious Disease related health problems and the promotion of health.
3. Demonstrate knowledge of established and evolving biomedical, clinical, epidemiological, and social-behavioral sciences, as well as the application of this knowledge to the care of patients with Infectious diseases in a private practice setting (including billing, contract negotiations, conflict resolutions)

4. Must demonstrate an awareness of and responsiveness to the larger context and system of health care, as well as the ability to call effectively on other resources in the system to provide optimal health care.
5. Must demonstrate interpersonal and communication skills that result in the effective exchange of information and teaming with patients, their families, and professional associates
6. must demonstrate a commitment to carrying out professional responsibilities and an adherence to ethical principles

Objectives

- 7 Diagnose efficiently common Infectious Diseases problems in a private practice inpatient setting
- 8 Evaluated ID patients in an outpatient private practice setting
- 9 Participate in clinical decision making for OPAT
- 10 Evaluate Infectious disease conditions in patients in an LTACH setting
- 11 Recognize the indication, usage and major side effects of drugs commonly used in a community setting and provide effective antibiotic stewardship
- 12 Work effectively as a member within the interprofessional team to ensure safe patient care in a non-teaching hospital environment on ID and non ID
 - a. Nursing, pharmacy, primary services, advance practice providers, radiology,
- 13 Understand the relationship between Infection Control and Infectious Disease in community hospital
- 14 Become familiar with Pharmacy and Therapeutics committees and the role of an ID physician in a community/private practice setting
- 15 Understand the business aspect of private practice growth (RVUs, Consultation costs, Infection Control, Antibiotic Stewardship, formulary management, hospital operations, practice overhead, partnerships in community)
- 16 Become familiar with teaching role as an ID physician for other physicians, trainees, nursing and staff in community setting
- 17 Become familiar with electronic medical records systems in community practice setting
- 18 Participate in Journal clubs/CME activity or other scholarly activity available in private practice setting

Example of 2 week rotation schedule

| Week 1 | Monday | Tuesday | Wednesday | Thursday | Friday | Notes |
|--------|-----------------|-----------------|-----------------|--|-----------------|------------------------|
| AM | OPAT Clinic | ASP 9-11 | ASP 9-11 | 8am COVID conference 10 am Grand Rounds | OPAT Clinic | |
| PM | Clinical Rounds | Clinical Rounds | Clinical Rounds | Thursday evening | Clinical Rounds | ASP, IC, PNT meetings, |

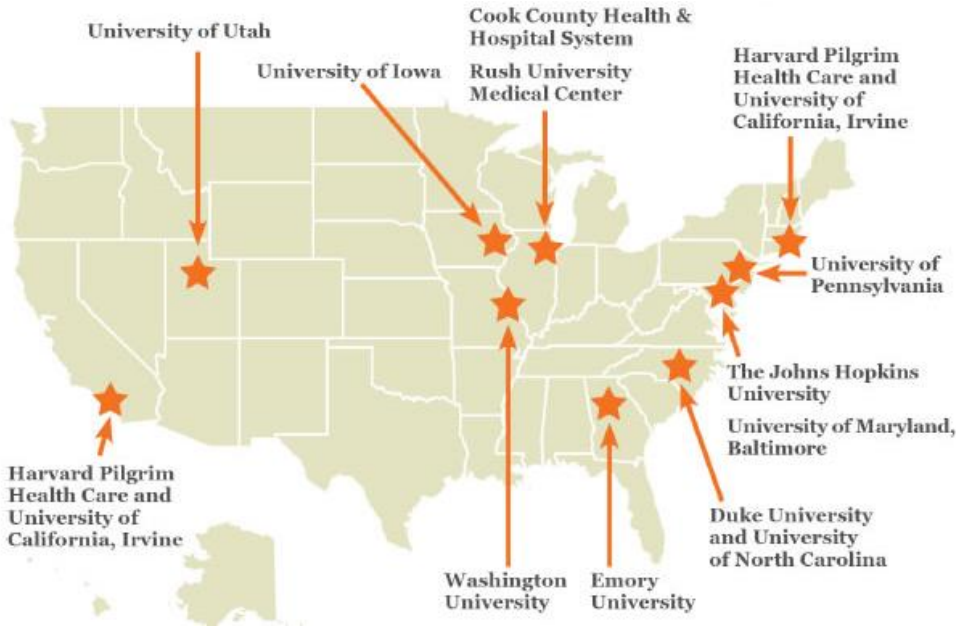
| | | | | | | |
|--------|--------------------|--------------------|--------------------|--|-------------------|--------------------|
| | | | | Journal Club (monthly) ICU Lectures (noon) Clinical Rounds | | LTACH experience * |
| Week 2 | Monday | Tuesday | Wednesday | Thursday | Friday | |
| AM | Kindred LTACH | ASP 9-11 | ASP 9-11 | 8am COVID conference 10 am Grand Rounds | Kindred LTACH | |
| PM | Clinical Rounds | Clinical Rounds | Clinical Rounds | Thursday evening Journal Club (monthly) ICU Lectures (noon) Clinical Rounds | Clinical Rounds | |
| | Contact: Dana Vais | Contact: Dana Vais | Contact: Dana Vais | Contact: David Hines | Contact Dana Vais | |

Research

Careers in research require dedicated time to focus on mastering a unique set of skills in order to be successful. The Rush/Cook County Health ID fellowship program offers the mentorship to develop research proficiencies through a customizable plan designed to lead to a career in academic medicine as a physician scientist. Fellows who are interested in academic or research careers will work closely with one or more mentors to acquire the skills and knowledge needed for success. The fellowship's distribution of clinical time over the span of 2 years allows for starting a research project as early as the first year. Fellows who are interested in learning research skills and participating in research during their fellowship but who do not aim to dedicate their career to research will be assisted early in their 1st year to identify mentors and projects through the clinical pathways.

Examples of options for research in Healthcare epidemiology, Infection Control, Antibiotics Stewardship and HIV are listed below. This pathway is for fellows interested in dedicated training in research, including those envisioning an academic career.

Hospital Epidemiology/Infection Control/Antibiotic Stewardship: Our program offers a funded 3rd year of research that is often done through our Chicago Prevention and Intervention Epicenter program. Rush and Cook County Health are participants in a unique research program in which CDC's Division of Healthcare Quality Promotion (DHQP) collaborates with academic investigators to conduct innovative healthcare-associated infection control and prevention research.



HIV clinical research: While not limited to these projects and while independently developed projects are encouraged, funded research projects that provide opportunities to research for fellows involvement are listed below. A third year of dedicated research in HIV can be developed

| NIH-sponsored | Pharmaceutical Trials | Observational Studies | HIV prevention |
|--|--------------------------------------|---|---|
| AIDS Clinical Trial Group—Dr Sha | Hepatitis C treatment trials—Dr Huhn | Chicago Women’s Interagency HIV study—Dr French/Shu | Adolescent Trials Network PreP studies—Dr Hosek |
| International Maternal Pediatric Adolescent AIDS Clinical Trials Group--Dr Aziz | HIV treatment trials—Dr Lubelchek | Multicenter AIDS Cohort Study –Dr Badri | ATEAM (R01)—Digital sensor for PreP usage—Dr Huhn |
| Division of Microbiology and Infectious Diseases STI Clinical Trials Network—Dr French | | | HPTN—injectable cabotegravir—Dr Oyedele |
| National Institute of Drug Abuse Clinical | | | |

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|---|--|--|--|
| Trials Network—Dr Vergara | | | |
| HOPE in Action Multicenter Kidney Study—Dr Santos | | | |

Education: Fellows can obtain a Masters Degree in Clinical Research offered at Rush University. Fellows are expected to complete training in Human Subject Protection and Good Clinical Practice. Rush University’s Research Mentoring Program offers assistance to mentees and their dedicated mentor and direct them to resources. The mentoring program offers three translational tracks (ie clinical, basic science or population research). It provides workshops, seminars and meetings with educational opportunities in statistics, grant writing, manuscript writing and data management.

Mentorship: Fellows will identify a mentor and will meet at least quarterly to discuss career goals and progress of research

| Pathway | Core Faculty Leadership/Mentors | Menu options |
|------------------|--|---|
| Research pathway | <p>Dependent on area of interest.</p> <p>Healthcare Epi/ antibiotic stewardship: Mary Hayden, Michael Lin, Sarah Won, Kyle Popovich</p> <p>HIV: Beverly Sha, Mariam Aziz, Brett Williams</p> <p>Other areas of interest to be customized to topic: Mariam Aziz, Shivanjali Shankaran</p> | <ol style="list-style-type: none"> 1.) Identification of mentor depending on area of research interest 2.) Identification of external mentor/sponsor that is not directly connect to research but monitors career goals 3.) Attend institutional grants writing seminars, writing workshops 4.) Develop a customized research project and longitudinal plan that can prepare preliminary work leading to a 3rd year of research 5.) Participate in the Rush Research Mentoring Program activities |

Goals and Objectives

Goals

7. Demonstrate knowledge of research skills including statistical analysis, data management, grant writing, manuscript editing etc.
8. Must demonstrate interpersonal and communication skills that result in the effective exchange of information and teaming with patients, their families, and professional associates
9. Must demonstrate a commitment to carrying out professional responsibilities and an adherence to ethical principles
10. Develop customized short term and long term research plan to identify and start projects in year 1, with the potential to culminate in a year 3 research year.