Infectious Disease Fellowship
Program

Subspecialty Training in Infectious Disease
Policies and Procedures
Curriculum

Division of Infectious Disease

University of Nebraska Medical Center

July 2015
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Infectious Disease Fellowship Overall Goals and Objectives

The primary goal of the Infectious Disease Fellowship Program is for participants to acquire the skills necessary to provide expert consultation and management of patients with infectious diseases. Fellows will also acquire the skills necessary to perform and interpret either clinical or basic science research. Fellows will do this through the following components:

- Acquiring an advanced understanding of infectious disease pathophysiology, epidemiology, clinical manifestations, diagnosis, therapeutic management and prevention
- Development of an independent, thoughtful, organized, and flexible approach to the evaluation of patients with symptoms and signs that suggest the presence of an infectious disease
- Development of life-long learning skills that allow the trainee to adapt to the changing spectrum of infectious diseases and their changing management, including changes in the health care system and associated technologies
- Acquiring the professional and interpersonal skills required for effective communication to primary care teams, patients, and colleagues
- Development of effective teaching skills for patients, students, residents, colleagues, and other health professionals
- Acquisition of expertise in the design, performance, analysis, and communication of scholarly activities, involving clinical, epidemiological, and/or basic science research

The ID fellowship curriculum is designed to ensure all fellows achieve proficiency in the core competencies of patient care, medical knowledge, practice-based learning and improvement, interpersonal and communication skills, professionalism, and systems-based practice. The successful trainee will be prepared to pass the ABIM exam to become board-certified in infectious diseases.

The fellowship program is designed to give fellows wide exposure to the practice of both clinical infectious diseases and research techniques in infectious diseases. The first year of fellowship is primarily devoted to acquiring clinical proficiency in both inpatient and outpatient aspects of care. The second year is increasingly focused on research activities with continued training in managing continuity of care in the outpatient setting and ID electives. The third year of training better prepares the fellow for a career as a lifelong learner by expanding upon productive and independent research. Details of individual rotations and their goals and objectives are listed later in this curriculum document.

Objectives

All fellows completing the UNMC Infectious Disease fellowship program will be expected to:

1. Develop competence and sophistication in the following as they pertain to infectious diseases in both immunocompetent and immunocompromised patients: history, physical
examination, laboratory analysis, diagnostic and therapeutic procedures, and clinical microbiology (medical knowledge and patient care).

2. Develop a substantial fund of knowledge regarding infectious diseases, including their pathophysiology, etiology, epidemiology, and clinical features; to know the optimal use of diagnostic tests to establish the presence or activity of these diseases; and to formulate an appropriate treatment plan which includes infection control protocols (medical knowledge and patient care).

3. Know the mechanisms of action, indications, contraindications, dosages, adverse effects, monitoring required, mechanisms of resistance, cost, and risk-benefit analysis of the agents used to treat infectious disease (medical knowledge, patient care, systems-based practice).

4. Develop skill in literature review, hypothesis generation, techniques of investigation, and data interpretation and presentation (medical knowledge and practice-based learning and improvement).

5. Acquire familiarity in the areas above, as they apply to the main categories of pediatric infectious disease (medical knowledge and patient care).

6. Develop a sound professionalism in providing conscientious, competent, and compassionate care for patients with infectious diseases (professionalism).

7. Possess communication skills that will allow them to work as a member or leader of a health care team (interpersonal and communication skills and systems-based practice).

8. Effectively coordinate patient care within the healthcare system (patient care, interpersonal and communication skills and systems-based practice).

9. Develop competence at communicating effectively with patients and families across a broad range of socioeconomic and cultural backgrounds; with physicians, other health professionals, and health related agencies (patient care, interpersonal and communication skills and systems-based practice).

10. Following the satisfactory completion of two years of clinical subspecialty training, all fellows who have also completed an accredited residency training in internal medicine (and hence are eligible) are also expected to take and pass the subspecialty examination in infectious diseases administered by the American Board of Internal Medicine (medical knowledge).
Facilities

The educational experience afforded fellows in the internal medicine subspecialty of infectious disease occur in the following venues:

**Primary training sites**
- Nebraska Medical Center (NMC)
  - Infectious disease clinics
  - Inpatient consultation services
- Specialty Care Center (SCC) – HIV clinic site

**Optional Rotations/Secondary Training Site**
- Douglas County Health Center – STD Clinic site
- Children’s Hospital and Medical Center (elective)
  - Pediatric ID

The primary training site contains inpatient facilities for acute and chronic care at primary, secondary, and tertiary levels; up to date imaging facilities; and fully equipped clinical laboratories providing service on a 24-hour basis. Rehabilitation medicine facilities are available, as are resources for all specialized tests used by infectious diseases specialists.

Specific Program Organization and Content

**Inpatient Clinical Experience**

The inpatient experience involves providing infectious disease consultation at NMC on a variety of infectious disease services. The educational purpose is the diagnosis and management of inpatient infectious diseases and coordination of the transition of care to an outpatient setting. The teaching methods will include teaching rounds and literature reviews with interesting case presentations to the section during city wide case conferences. Patient characteristics will include both adult men and women of all ages. Clinical encounters will occur in an inpatient setting. Fellows are encouraged to become involved with ancillary services and personally review all microbiology, radiology and pathology with the appropriate staff.

It is the responsibility of the infectious diseases service to provide detailed consultation for the Department of Internal Medicine and other services. Infectious disease fellows spend a minimum of eight months on the general ID consult service, during which they encounter a wide variety of infectious diseases. Since the infectious disease service acts in a consultant capacity, by definition the fellows are part of a multispecialty or multidisciplinary team caring for these patients.
The infectious diseases fellow is given primary responsibility for evaluating the patient for whom the consultation was requested. The fellow then presents the case to the attending, who reviews the history, physical examination, and laboratory evaluation in detail. With the oversight of the attending physician, the fellow is responsible for developing a management plan. The subspecialty fellow thus plays a major role in the initial evaluation of the patient and interfacing with the house staff and/or attending physician involved in direct management of the case. In addition, he/she provides reference materials to the primary team and is available to address problems of patient management. He/she follows all patients throughout their hospital course and when appropriate, afterward, in the respective outpatient clinic. The consult fellow is also on-call to consult on patients in the Emergency Room. The consult services see approximately 20 new patients per week, with a wide variety of clinical conditions represented.

The infectious diseases attending will be available at all times to the infectious diseases fellow. Teaching and management rounds will be combined and include discussion regarding the interpretation of clinical data, pathophysiology, differential diagnosis, specific patient management, appropriate use of technology and incorporation of evidence and patient values in clinical decision making and disease prevention. Teaching rounds will exceed by a minimum of 5 hours per week the time required to supervise the care of the patients.

Schedule by Year:

Year 1: General ID (7 mo.), Transplant ID (1 mo.), Oncology ID (1 mo.), Microbiology (1 mo.), Research (2 mo.)

Year 2: General ID (1-3 mo.), Infection Control/Antimicrobial Stewardship (1 mo.), Outpatient ID (1 mo.), Research (4-6 mo.), Transplant ID/Oncology ID (3-4 mo.), Electives (0-2 mo.)

Year 3: Research (8-10 mo.), General ID (1-2 mo.), Electives (1-2 mo.)

Sample rotation schedule schematic:

<table>
<thead>
<tr>
<th></th>
<th>Jul</th>
<th>Aug</th>
<th>Sep</th>
<th>Oct</th>
<th>Nov</th>
<th>Dec</th>
<th>Jan</th>
<th>Feb</th>
<th>Mar</th>
<th>Apr</th>
<th>May</th>
<th>Jun</th>
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</thead>
<tbody>
<tr>
<td>Year  I</td>
<td>1</td>
<td>M</td>
<td>G</td>
<td>G</td>
<td>O</td>
<td>G</td>
<td>G</td>
<td>R</td>
<td>G</td>
<td>G</td>
<td>R</td>
<td>T</td>
</tr>
<tr>
<td>Year II</td>
<td>1</td>
<td>G</td>
<td>R</td>
<td>R</td>
<td>OP</td>
<td>T</td>
<td>O</td>
<td>G</td>
<td>R</td>
<td>I</td>
<td>T</td>
<td>G</td>
</tr>
<tr>
<td>Year III</td>
<td>1</td>
<td>R</td>
<td>E</td>
<td>R</td>
<td>G</td>
<td>R</td>
<td>R</td>
<td>E</td>
<td>R</td>
<td>R</td>
<td>R</td>
<td>R</td>
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</tbody>
</table>

M=Microbiology, G= General ID, T=Transplant ID, O=Oncology ID, E=Elective, I=Infection Control/ASP, R=Research, OP=Outpatient
There is flexibility in scheduling elective and research time and rotations will be based on fellow interest and preference as able. Elective months may include: pediatric ID, private practice, or other pre-approved rotations relative to the field of infectious diseases where the fellow may have a special interest.

On-call duties are designated by rotation. Two weekends a month will be free of call, without any service obligations including pager call. Other fellows or residents may provide call coverage in their absence. There will be minimal fellow call requirements during the optional third year of research. If taking additional time off during a consult month, the consult fellow is responsible for finding coverage.

**Ambulatory Care Experience**

The educational purpose of the ambulatory care experience is to diagnose and manage outpatient infectious diseases including HIV/AIDS. The teaching methods include one to one faculty discussion of each patient. In addition, literature reviews with interesting case presentations to the section during weekly case conference will be encouraged. Patient characteristics will include adult men and women of all ages. The ambulatory care experience includes attendance at assigned clinics as well as an ambulatory care rotation.

It is expected that each fellow will be responsible for four to eight patients during each ½ day of clinic. Infectious disease fellows participate in the following required clinics during their first two years of training.

1) The General ID Clinic will occur on Wednesday mornings in the Durham Outpatient Center. It will expose trainees to patients with both acute and chronic infections. These patients include a mix of new consults from the outpatient setting and follow up visits for recently discharged inpatients. The supervising faculty will be the attending from the previous 2 week block. Fellows will work in this clinic during the second half of their first year and first half of their second year (Jan-Dec).

2) HIV Continuity Clinic will occur on Friday mornings in the Specialty Care Center located on 52nd St and Leavenworth St. Fellows will see patients with or at risk for HIV/AIDS. They will have their own panel of patients which they follow throughout their fellowship.

Clinic Schematic:

<table>
<thead>
<tr>
<th></th>
<th>Monday</th>
<th>Tuesday</th>
<th>Wednesday</th>
<th>Thursday</th>
<th>Friday</th>
</tr>
</thead>
<tbody>
<tr>
<td>AM</td>
<td></td>
<td></td>
<td><strong>General ID Clinic</strong></td>
<td></td>
<td>HIV Clinic</td>
</tr>
<tr>
<td>PM</td>
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</tbody>
</table>
In the first and second years, fellows have approximately two and four months of research time, respectively. During these months, they do not typically have responsibility for inpatient consultations, but do continue their continuity outpatient clinics. During the third year of training, continuity clinic is optional.

Fellows will also have an outpatient ID month during their second year which will include experiences in the viral hepatitis clinic, travel medicine clinic, wound care clinic, STD clinic, orthopedic ID clinic, cystic fibrosis clinic, and other ID related ambulatory experiences.

In all of these settings, the fellow performs his/her own complete evaluation of the patient. He/she then presents his workup to an attending infectious disease specialist, who performs his/her own independent evaluation and provides feedback and guidance to the fellow, while the two arrive at a disposition. This procedure applies for both new and follow-up patients.

**Specific Program Content**

The specific goals and objectives of the individual clinical rotations are listed separately in this document. Training in infectious diseases includes the development of life-long learning skills. One such skill is self-directed learning through reading, computer-based teaching tools, and the Internet. The fellows have access to books, journals and software to supplement their training from lectures and clinical rotations.

**Technical and Other Skills**

The management of the various infectious disease conditions seen during the fellowship provides extensive experience from which the fellows acquire skill and competence in the various aspects of infectious diseases. Fellows are expected to acquire competence through a combination of instruction and clinical experience in various areas of infectious disease as outlined below.

**Knowledge and Competence**

<table>
<thead>
<tr>
<th>Topic</th>
<th>Clinical Experience</th>
<th>Lecture</th>
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<tbody>
<tr>
<td>a. Bacterial infections</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>b. Fungal infections</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>c. Healthcare-associated infections</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>d. HIV/AIDS</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>e. Infections in patients in the intensive care unit</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>f. Infections in patients with impaired host defenses</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>g. Infections in surgical patients</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>h. Infections in travelers</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>i. Parasitic infections</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>j. Prosthetic device infections</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>k. Sepsis syndromes</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>l. Sexually transmitted infections</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>m. Viral infections</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>
Demonstrate Knowledge:

A. Knowledge of antimicrobials including the mechanisms of action and adverse reactions of antimicrobial agents, antimicrobial and antiviral resistance, and drug-drug interactions between antimicrobial agents and other compounds

B. The appropriate use and management of antimicrobial agents in a variety of clinical settings, including the hospital, ambulatory practice, non acute-care units, and the home

C. Appropriate procedures for specimen collection relevant to infectious diseases, including but not limited to bronchoscopy, thoracentesis, arthrocentesis, lumbar puncture, and aspiration of abscess cavities

D. Principles of prophylaxis and immunoprophylaxis to enhance resistance to infection

E. Characteristics, use, and complications of antiretroviral agents, mechanisms and clinical significance of viral resistance to antiretroviral agents, and recognition and management of opportunistic infections in patients with HIV/AIDS

F. Fundamentals of host defense and mechanisms of microorganism pathogenesis

G. Development of appropriate antibiotic utilizations and restriction policies

H. Infection control and hospital epidemiology

I. Scientific method of problems solving and evidence-based decision making

J. Indications, contraindications, limitations, complications, techniques, and interpretation of results of diagnostic and therapeutic procedures integral to infectious disease, including the appropriate indications for and use of screening tests/procedures

Formal Instruction

The following formal didactics will be incorporated and mandatory for the infectious disease fellow during all rotations and in each year of training:

1.) Core Conference – Core conferences are included in 2 components.
   a. HIV Discussion Group – HIV didactic teaching and discussion will occur at 12PM on the 2nd and 4th Tuesday of each month. Location is typically in the conference room off the physician dining room or SSP conference room.
   b. Core Curriculum – Lectures covering a broad range of infectious disease topics will be held at Noon on the 1st and 3rd Thursday of the month. Location and topic will be provided to fellows.

2.) Case Conference/City-Wide – Attend weekly city-wide ID conference. When conference is held at UNMC (3rd Thursday of month) the first year fellow is expected to present a case. This conference is also a quality improvement conference where errors, diagnostic difficulties, and unexpected findings are presented and discussed. This conference is attended by disciplines outside of the section of infectious diseases, such as pathology, microbiology, and nursing.
3.) Research Conference – conference is attended by ID division and meets once per month between September and May. One faculty member is expected to present an ongoing research project. Fellows will be expected to present their research project.

4.) Journal Club – meets monthly with ID division. Fellows present regularly at this conference.

5.) Infection Control/Stewardship Journal Club – meets monthly with faculty, nurses, and pharmacists involved in these areas. Fellows present regularly at this conference.

6.) Board Review – meets twice a week Sept-June. Fellows review board style questions and cases with Dr Van Schooneveld or Dr. Rupp.

5.) Internal Medicine Grand Rounds – this conference is sponsored by the Department of Internal Medicine and is held weekly. Infectious diseases faculty and fellows are expected to attend

6.) Internal Medicine Noon Conference – this conference is sponsored by the Department of Internal Medicine and is held twice weekly. Fellows are not required to attend; however, attendance will be required when issues pertinent to infectious diseases are presented. Fellows will be notified when this is occurring.

The following is a conference schematic:

<table>
<thead>
<tr>
<th>Day</th>
<th>Time</th>
<th>Week 1</th>
<th>Week 2</th>
<th>Week 3</th>
<th>Week 4</th>
<th>Week 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monday</td>
<td>12PM</td>
<td>Board Review</td>
<td></td>
<td></td>
<td>Board Review</td>
<td></td>
</tr>
<tr>
<td>Tuesday</td>
<td>12PM</td>
<td>Research Conference</td>
<td>HIV Discussion</td>
<td>ID Journal Club</td>
<td>HIV Discussion</td>
<td></td>
</tr>
<tr>
<td>Wednesday</td>
<td>12PM</td>
<td>IC/ASP Journal Club</td>
<td></td>
<td></td>
<td>Infection Control Committee</td>
<td></td>
</tr>
<tr>
<td>Thursday</td>
<td>8AM</td>
<td>Case Conf – Methodist</td>
<td>Case Conf - CUMC</td>
<td>Case Conf - UNMC</td>
<td>Case Conf - VAMC</td>
<td>Case Conf - Bergan</td>
</tr>
<tr>
<td>Thursday</td>
<td>12PM</td>
<td>Core Lecture</td>
<td></td>
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<td>Core Lecture</td>
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<td>Friday</td>
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</table>

ID fellows have clinical experiences and/or formal instruction in the prevention, evaluation, and management of the following disorders:

A. Antimicrobial agents – mechanism of action, resistance mechanism, drug-drug interactions, spectrum of activity, and use in hospital, outpatient and other care settings

B. Microbiology – appropriate specimen collection, microbiologic techniques for organism identification, and methods for determining activity of antimicrobics

C. Disease Prevention – vaccines, prophylaxis, infection prevention and healthcare epidemiology

D. Research and Statistical Techniques – see research section
E. HIV/AIDS – Characteristics, use, and complications of antiretroviral agents, mechanisms and clinical significance of viral resistance, and recognition/management of opportunistic infections
F. Mycobacterial disease – epidemiology, clinical course, manifestations, diagnosis, treatment and prevention
G. Parasitic diseases – epidemiology, clinical course, manifestations, diagnosis, treatment and prevention
H. Common infectious syndromes –
   a. Evaluation of the febrile patient, fever and rash, and FUO
   b. ID Emergencies
   c. Skin/Soft Tissue Infections
   d. Urinary Tract Infections
   e. Sepsis
   f. Lower Respiratory Tract Infection
   g. Upper Respiratory Tract Infection
   h. Peritonitis and Intra-abdominal Infections
   i. Gastrointestinal Infections and Foodborne Disease
   j. Cardiovascular Infections
   k. Catheter-Related BSI and Other HAI’s
   l. Osteomyelitis/Diabetic Foot Ulcers/Prosthetic Joint Infection
   m. CNS Infections – Meningitis/Brain Abscess/Encephalitis
   n. STD’s and Infectious of Reproductive Organs
   o. Ocular Infections
   p. Infections in Immunocompromised Hosts
I. Common Pathogens
   a. Malaria
   b. Potozoa and Parasites
   c. Herpes Viruses – CMV and other Herpes Viruses
   d. Viral Hepatitis
   e. Respiratory Viruses and Influenza
   f. Other viruses – Mumps/Rubella/Measles, Filoviruses, etc.
   g. Staphylococcus aurues
   h. Clostridium difficile infection
   i. Endemic Fungal Infections
   j. Tickborne and Rickettsial Disease
   k. Tuberculosis
   l. Other Mycobacterial Diseases/Nocardia
   m. Zoonoses
Fellow Requirements

Inpatient consultation services

While serving on the inpatient consultation services at UNMC, the fellow is responsible for seeing all consultations requested from other physicians at those hospitals in a timely manner. Typically, patients will be seen and a preliminary note written the same day the consult is requested. All patients must be seen within 24 hours, including weekends. The consult team includes Internal Medicine residents and often students as well. The fellow should serve as the “team manager” and assign patients to other physicians for evaluation and presentation to the attending, as well as providing education to less-experienced physicians/students on the team. Rounds with the consult attending are held daily, at times set by the attending and fellow. The fellow is responsible for making sure that all team members are present for rounds, that all consult notes have been written, and that ancillary studies (culture results, imaging, pathology, special tests) are available for review by the attending.

The fellow is responsible for daily visits to monitor and document the progress of patients on the consultation service. These may be made by the fellow or by the resident/student who originally performed the consultation. In the latter case, the fellow should verbally review the patients’ progress with the resident/student on a daily basis. Any questions or concerns about patient management by the resident/student warrant personal evaluation of the patient by the fellow. In the case of patients hospitalized for long-term care of non-infectious disease problems, the fellow may decrease the frequency of follow-up visits or “sign-off” the case with the advance approval of the attending physician.

The fellow is responsible for inpatient related pages and telephone calls to the infectious disease service, including consultations from the Emergency Department and outside physicians. The fellow is expected to respond to these requests in a timely and professional manner and review the information with the attending physician.

Outpatient services

Fellows assigned to the outpatient clinics at UNMC are expected to see all their assigned patients within the allotted time of the clinic. They are to be present for each clinic as scheduled, unless excused by the Program Director and Attending Physician of that clinic and the scheduling and nursing staff has been notified in advance. It is the fellow’s responsibility to assure that clinics are cancelled and patients are rescheduled.

Fellows are responsible for the out-of-clinic management of their primary patients both in the HIV and General ID clinic (e.g., lab follow up, prescription refills, phone calls, letters, etc.). Consultation with the attending physician for that clinic is always available when questions arise. When a fellow is on vacation, coverage must be pre-arranged. Clinic notes are expected to be entered promptly with noted completed within 24 hours of seeing the patient. Additionally lab follow up should occur within promptly.
Conferences

All fellows are expected to attend all scheduled infectious disease teaching conferences and Internal Medicine Grand Rounds. A sign-in sheet is provided and fellows will attest that they were present for conference. Conference times are in the schedule above. Chronic tardiness is regarded as evidence of unprofessional behavior.

Research Training

I. Program Goals and Objectives

The overall program goal is to provide fellow trainees with the needed competencies to independently conduct biomedical research in infectious diseases. It is expected that all infectious disease fellows at UNMC will participate in a mentored research program to meet this goal.

The UNMC Department of Medicine and Division of Infectious Diseases are fully committed to providing the required resources and research environment for the successful completion of the research training program. Specific program objectives have been established for participating fellows to insure that trainees gain core competencies in the following areas:

- Principles guiding the conduct of ethical and humane research
- Conduct of systematic literature review in focus area
- Study design
- Protocol development
- Administrative issues including IRB communications
- Data collection and data management
- Basic concepts of statistical analysis
- Data interpretation
- Report generation including abstracts / manuscripts

II. Benchmarks and requirements

a. Selection of Research Mentor(s): Selection of a research mentor is important. Fellows will meet with each ID faculty member to discuss possible research projects and interests during the first 3-4 months of their fellowship. Fellows will also meet with a research committee every 6 months during their fellowship to provide guidance in their ongoing projects. The purpose of this committee is to assist the fellow in successfully choosing, performing and publishing their research. Each fellow will have a specific faculty mentor during each research project he/she completes. Fellows will also be exposed to research opportunities in the division through research conferences. They are expected to choose a specific area of research focus by the end of the first 6 months of the fellowship based on personal interest, faculty availability, and input from the program director and research committee.
b. **Participation in UNMC CRC research training symposium:** The UNMC College of Medicine sponsors an annual two-week symposium for fellows and junior faculty. The symposium covers core areas in the conduct of clinical and translational research. Infectious disease fellows will be required to participate in this program during their first year of training.

c. **Report submissions:** At a minimum, fellows are expected to participate in scholarly activity during the first 2 years of training by one of the following: publication of articles, book chapters, abstracts or case reports in peer-reviewed journals; publication of peer-reviewed performance improvement or education research; peer reviewed funding; peer reviewed abstracts presented at regional, state, or national specialty meetings.

d. **Epidemiology:** Each fellow will gain proficiency in basic epidemiology and will be required to complete a small research or quality improvement project related to infection control or antimicrobial stewardship.

It is recognized that fellows may participate in more than one study during their training period although they will be solely responsible for the conception and implementation of only one protocol. Participation in additional studies can augment exposure to different areas of research and different research methodologies and will be encouraged.

III. **Resources to Support Mentored Research**

Resources available to the infectious disease trainee include but are not limited to:

a. **Educational resources:** Additional educational resources are also available to the fellow including support for specific training activities and corresponding travel. Specific requests will be considered by the program director in consultation with the research mentor / trainee. Formal Masters (MPH) training in clinical research, epidemiology, or biostatistics is available through the UNMC School of Public Health.

b. **Campus-wide research resources:** There are several research resources available on the UNMC campus to support pilot studies or studies conducted by trainees. The UNMC Clinical Research Center (CRC) Research Support Fund provides hospital ‘write-off’ for billable expenses related to studies.

IV. **Research collaborations:** In addition to the resources outlined above, the Division is actively engaged in numerous other collaborative efforts. Members of the UNMC Division of Infectious Diseases actively participate in innovative clinical and basic research in order to prevent, diagnose, and treat infections. Our fellowship program will offer bench, epidemiology/outcomes and clinical trials research opportunities to fellows. Areas of research include antimicrobial stewardship, healthcare
epidemiology, nosocomial and device related infections, orthopedic infections, tuberculosis, HIV, solid organ transplant, oncology ID, antimicrobial resistance, staphylococcal pathogenesis, microbial biofilms, and biopreparedness. There are multiple ongoing projects in these areas as well as many others. UNMC has a one-of-a-kind “Center for Staphylococcal Research.”

The UNMC HIV Program is as well-known for its research prowess as its clinical care. UNMC is an active participant in the Adult AIDS Clinical Trials Group (AACTG), the largest HIV clinical trials organization in the world, which plays a major role in setting standards of care for HIV infection and opportunistic diseases related to HIV/AIDS in the United States and the developed world.

V. Third year of research: A third year of fellowship devoted to research is strongly encouraged to prepare fellows for the rigors of conducting high quality, externally-funded research.

VI. Compliance with UNMC Data Security Policies: Fellows are expected to comply with all UNMC/TNMC computer and patient data security policies.

Evaluations

In order for the training program to assess its ability to meet its goals and objectives, it is essential that the program have an evaluation process, including formative and summative evaluations of the fellows, and an evaluation process of the program and the faculty (see Appendix II for evaluation forms).

Formative Evaluation of the Fellows

Formal formative evaluations occur at the completion of any substantive interaction with a specific faculty member or specific rotation. For each clinical rotation, the supervising faculty member will complete an evaluation form. All faculty must complete the form prior to the completion of the rotation and review their impressions directly with the fellow. All completed evaluation forms are returned to the program director for review and placed in the fellow’s permanent file.

Most evaluations are completed on New Innovations, and the program director has full access to review evaluations. Additionally, evaluations are printed and maintained in each fellow’s file. If a fellow receives a low score evaluation, the program director and program coordinator are notified by New Innovations. Furthermore, New Innovations will also send notifications about delinquent evaluations. Fellows also have access to view their completed evaluations on New Innovations.

A 360 degree evaluation will be done on each fellow every 6 months. This evaluation will be completed by nursing, ancillary staff, patients, residents and any other staff members that the fellow regularly interacts with. Additionally, fellows will complete an annual self-evaluation.
At least semi-annually, all fellows will confer individually with the program director to review all of their evaluations. This meeting is to provide feedback to the fellow on their performance and to identify areas for professional enhancement. A written summary of this session is placed in the fellow’s permanent file.

Clinical Competency Committee

The ACGME requires that clinical competencies committees be used to evaluate fellow progression through the recently published milestones. The role of the UNMC Clinical Competency Committee is to advise and assist the program director regarding fellow performance. Specifically, the Committee will assist and advise the Program Director in decisions regarding:

- Fellow advancement / promotion to next phase of training
- Final competency ratings for graduating fellows
- Initiation of a Performance Improvement Plan for a resident who is underperforming
- Termination or nonrenewal of a resident contract when necessary

At least twice yearly each fellow’s performance will be reviewed by the committee. During this process, the committee will systematically review each fellow’s evaluations, adherence to policies and procedures and other available information and advise the Program Director regarding the resident’s development of competence for each ACGME competency domain. This may include recommendations to place the resident on a performance improvement plan consistent with institutional policy. Feedback of this evaluation will be provided to the fellow by the Program Director or the Associate Program Director at their 6 month evaluation.

Summative Evaluation of the Fellows

Fellows meet individually with the program director (and/or associate program director) at least semi-annually where feedback on their performance in both a formative and summative fashion is given. Fellows will be provided with copies of all evaluations including 360 degree evaluations, Mini-CEX evaluation, simulation evaluation, resident or peer evaluations, and evaluations completed by faculty members at the completion of each assignment. The results of the CCC discussion will be made known to the fellow and their progress on the ACGME milestones will be discussed and copy of their specific milestones will be provided. A summary evaluation will be provided. Goals for the next 6 months of fellowship will be developed with fellow input.

Any adverse judgments or evaluations regarding the fellow’s level of performance or competence should first be directed to the program director. If the fellow feels that this is not to their satisfaction, then the grievance can be addressed by established institutional policy.

Evaluation of the Faculty, Rotation, and Program
For each clinical rotation, fellows are required to complete and return an evaluation form of the faculty and the rotation. Evaluations are reviewed by the program director and anonymity of the fellow will be maintained by inclusion of resident and non-UNMC fellow evaluations. Annually, a summary evaluation report will be given to every faculty member by the program director. These reports will include a large enough time frame (at least 1 year) or may include resident feedback to ensure anonymity of the fellows.

Fellows and faculty will also complete an annual evaluation of the fellowship program. These evaluations are reviewed by the program director and anonymity of fellows and faculty will be maintained. These surveys will be reviewed at the annual Program Evaluation Committee meeting which includes at least one fellow and discussed there.

The role of the Program Evaluation Committee is to formally and systematically evaluate the curriculum at least annually. Specifically, the Committee will assist and advise the Program Director in:

- Planning, developing, implementing, and evaluating the education activities of the program
- Reviewing and making recommendations for revision of competency-based curriculum goals and objectives
- Addressing areas of non-compliance with ACGME/RRC standards
- Reviewing the program annually using evaluations of faculty, fellows, and others, as specified below
- Documenting the results of their review and developing a written plan of action to improve the curriculum (Program Improvement Plan) in at least one area, and delineating how it will be measured and monitored

Conferences, Travel, and Non-Program Employment

As long as funding is available, the program will send fellows to either the Infectious Disease Society of America (IDSA), Society for Healthcare Epidemiology of America (SHEA) or Interscience Conference on Antimicrobial Agents and Chemotherapy (ICAAC) conference during their first year. Subsequent attendance is dependent upon fellow interest and research activity. Attendance during the second or third year will be allowed if an abstract or case is submitted or accepted for presentation. Fellows are strongly encouraged to apply for travel grants available through the sponsoring organizations.

Fellows who participate in special research projects may, with our review/permission, submit or present abstracts at another focused conference. The division may sponsor/support fellow attendance; however, this will be on a case-by-case basis and may be the responsibility of the mentor rather than the division.

Attendance at industry-sponsored conferences, dinners, sporting events, etc. presents the potential for conflict of interest. In general, attendance is discouraged, unless substantial, novel educational material is being presented. Attendance at marketing or promotional conferences is highly discouraged. University funds cannot be used for travel to such events, nor can fellows attend them during official duty hours. An exception to this policy is a conference, or CME course, presented by an academic institution with industry funding as long as there is
independence in the choice of speakers and topics. Attendance at these conferences must be approved through the usual vacation requests and educational is not generally approved for such events. Fellows must develop a clear sense of an ethical relationship with industry early in their careers.

In accordance with University policy, no funds are available for certification in areas not covered by the training program.

All travel for business purposes is subject to University regulations. Fellows must submit travel plans to the section education office at least one month in advance of travel. Hotel, airfare, ground transportation, meals, and other expenses are subject to limits imposed by both the University and the availability of funds. Documentation of expenses will be required for reimbursement. It is important to note that travel plans for business purposes that will require no expenses to the University must still be given to the education office one month in advance for authorization. A leave slip must be submitted for the days you will be absent due to conferences. These days will be charged as educational days. The leave slip must be approved by the program director.

**Non-Program Employment (Moonlighting):**
The infectious disease fellowship is designed to be a full time position. Employment outside the fellowship (“moonlighting”) is discouraged and subject to University guidelines. Such activity requires the approval of the Program Director and GME office and must not interfere with clinical or research duties. Before a fellow may participate moonlighting activities, he/she must complete a Record of Outside Employment Form and have it signed by the program director and approved by the UNMC Graduate Medical Education Office. All moonlighting activities are considered part of the 80-hour weekly limit on duty hours.

Once approval is given for moonlighting activities, it is subject to withdrawal if it is determined to interfere with the responsibilities, duties, and/or assignments of the training program. All fellows engaging in outside medical practice must have a full practice license in the state in which they are working. Fellows cannot be required to participate in outside practice. Fellows with a J1 visa are not permitted to engage in outside medical practice.

**Professional Liability Insurance:**
UNMC provides professional liability insurance, including tail coverage. This policy covers the fellow while providing patient care either as part of the training program or as outside medical practice that has been approved according to the paragraphs above.

**Fellowship Space, Equipment, Books**
Fellows will have their own office space located in SSP 3029, and the fellows will have access to the internal medicine residency lounge at the Nebraska Medical Center. In the fellows' office space, there are 4 computers, and therefore, fellows will have access to specialty specific reference material through the University library with search capabilities in electronic format. Also, the infectious disease section has a library of ID related journals, which the library does not
currently subscribe to located in SSP 3022. These will be available to the fellows as well. Fellows will be provided with a copy of Mandell's Principles and Practice of Infectious Disease at the start of their fellowship. Additional ID textbooks are available in the fellow office.

Additionally, each fellow will receive a USB drive at the start of the fellowship program to store research material and fellow talks. Additional funds for fellow education material may be available and fellows should submit requests to the program director.

Furthermore, fellows have convenient access to laboratory for clinical microbiology which is located on the 3rd floor of the Clarkson tower. Direct and frequent interaction with microbiology laboratory personnel is both readily available and expected.

The Infectious Disease Division, as well as the Department of Internal Medicine, has conference rooms available for teaching purposes. Most of these rooms have a computer and projector to assist in teaching and presentations.

The internal medicine residency lounge has snacks and drinks available to the fellows and has a library of academic medical journals. Additionally, more computers are available in this lounge. There are two cafeterias and a convenience store located at The Nebraska Medical Center.

Call rooms are not needed for the fellows, but if there is ever a situation where a room is needed, the fellows can have access to rooms in the Lied Transplant Center, located in The Nebraska Medical Center.

**Duty Hours**

All fellows are required to maintain a duty hour log. Duty hours will be continuously monitored by the program director and will also be discussed at the monthly fellowship meeting between the fellows and program director. Duty hours will comply with ACGME requirements.

**Coverage of Non-Teaching Patients**

All patients in the inpatient and outpatient facilities and rotations are potential teaching patients. Because the clinical volume at inpatient and outpatient clinical settings exceeds the involvement of fellows, an effort will be made to especially involve the fellows in patients with the greatest potential educational value to the trainees.

If a patient requests that house officers not be involved in his/her medical care, the patient may be deemed “non-teaching status.” In this case, fellows will not be asked to see this patient except under emergency situations and with prior approval by the fellow’s attending.
Description of Curricula

Clinical Microbiology, Nebraska Medicine
- This is a first-year rotation.
- Fellows spend one month rotating in clinical microbiology and participate in structured rotations at the different benches in the clinical microbiology laboratory including: primary plating, sub-culturing, susceptibility testing, blood cultures, respiratory, urines, miscellaneous, anaerobes, mycology, mycobacteriology, parasitology, virology, serology, and molecular microbiology. They learn from the medical technologists the basic principles and practices in clinical microbiology and the capabilities of our laboratory. Fellows are expected to participate in microbiology rounds with the laboratory directors and pathology residents and fellows. Dr. Paul Fey, PhD who is the laboratory director supervises this rotation. The ID fellow is supervised at all times by the laboratory technologists with whom they are working and by the laboratory director.

Transplant ID Service, Nebraska Medicine
- This is predominantly a second-year rotation.
- The fellow receives all consultations and determines the urgency of the consult. Depending on the consult, the fellow will decide which team member sees the patient and with what urgency. The fellow will either see or review the case with the other ID team members and make initial recommendations. All consults are presented by the fellow and team to the attending within 24 hours of consult and sooner if it is an urgent/emergency consult.

First-year fellows are expected to be closely supervised by attending physicians in terms of consults. As fellows progress through the first year and their ability to assume more responsibility is developed, the need for direct supervision will decline. Fellows are expected to make judgment of increasing complexity throughout their training. As fellows become experienced on the general ID service, the attending physician, although responsible for the care of the patient, is considered to be fulfilling an administrative/educational role.

General ID Service, Nebraska Medicine
- This is predominantly a first year rotation.
- There may be medical students, interns and residents on this rotation.
- The fellow receives all consultations and determines the urgency of the consult. Depending on the consult, the fellow will decide which team member sees the patient and with what urgency. The fellow will either see or review the case with the other ID team members and make initial recommendations. All consults are presented by the fellow and team to the attending within 24 hours of consult and sooner if it is an urgent/emergency consult.

First-year fellows are expected to be closely supervised by attending physicians in terms of consults. As fellows progress through the first year and their ability to assume more
responsibility is developed, the need for direct supervision will decline. Fellows are expected to make judgment of increasing complexity throughout their training. As fellows become experienced on the general ID service, the attending physician, although responsible for the care of the patient, is considered to be fulfilling an administrative/educational role.

**Oncology ID, Nebraska Medicine**
- This is predominantly a second-year rotation.
- The fellow receives all consultations and determines the urgency of the consult. Depending on the consult, the fellow will decide which team member sees the patient and with what urgency. The fellow will either see or review the case with the other ID team members and make initial recommendations. All consults are presented by the fellow and team to the attending within 24 hours of consult and sooner if it is an urgent/emergency consult.

First-year fellows are expected to be closely supervised by attending physicians in terms of consults. As fellows progress through the first year and their ability to assume more responsibility is developed, the need for direct supervision will decline. Fellows are expected to make judgment of increasing complexity throughout their training. As fellows become experienced on the oncology ID service, the attending physician, although responsible for the care of the patient, is considered to be fulfilling an administrative/educational role.

**Research, Nebraska Medicine**
- This is predominantly a second and third year rotation.
- The fellow will work with a faculty research mentor.
- Fellows are expected to spend their time on the research rotation answering a specific question or questions. They will spend time working with their selected faculty mentor reviewing the literature, developing a hypothesis, creating a research strategy to evaluate their hypothesis, executing their planned research, analyzing the acquired data, and presenting their work both in written and verbal form. They will be supervised during their project by their selected mentor. Fellows will develop and perform their project with the guidance of their selected mentor with the goal of obtaining the skills to independently pursue research in the future. Also fellows will meet every 6 months with the research committee who will also monitor fellow progress in their research.

**Infection Control/Antimicrobial Stewardship, Nebraska Medicine**
- This is a second year rotation.
- Fellows spend one month receiving training in infection control and antimicrobial stewardship. They will spend time observing and working with the infection control practitioners and directors of healthcare epidemiology and antimicrobial stewardship. They will actively participate in stewardship rounds, develop a small project in these areas, and will take the IDSA/SHEA online course. The ID fellow is supervised at all times by the infection control practitioners with whom they are working and by the directors of healthcare epidemiology and antimicrobial stewardship.
Outpatient, Affiliated Clinics of Nebraska Medicine
- This is a second year rotation
- Fellow will not be responsible for any other trainees
- Fellow will create an outpatient month elective where he/she rotates to various clinics including STD clinic, travel clinic, orthopedic infectious disease clinic, wound clinic, viral hepatitis clinic, and cystic fibrosis clinic.

The fellow is the first to see the patient in the clinic and is responsible for generating an initial care plan and discussing the case with a faculty member. The faculty will see all outpatients seen initially by the fellow and will use indirect supervision to allow the fellow to maintain a reasonable amount of independence and decision making ability. The fellow will draft a clinic/consult letter to the referring physician, which will be reviewed, edited, and signed by the appropriate faculty member (faculty oversight).

Electives
- These are second year rotations
- Electives may include

Private Practice ID, Nebraska Medicine
- There may be residents or students on this rotation
- Fellows may choose to spend one month on the private practice ID rotation where he/she rounds with a private practice group. The fellow will receive consults at the discretion of the rotational attending. The fellow will either see or review the case with the other ID team members and make initial recommendations. All consults are presented by the fellow and team to the attending within 24 hours of consult and sooner if it is an urgent/emergency consult.

While first-year fellows would be expected to be closely supervised by attending physicians in terms of consults this is primarily a second year rotation. Fellows are expected to have developed significant experience through previous ID rotations and the attending physician, although responsible for the care of the patient, is considered to be fulfilling an administrative/educational role (indirect supervision). Dr. Rick Starlin is the medical director of this rotation.

Pediatric ID, Nebraska Medical Center and Children’s Hospital
- There may be residents, students, or other fellows on this rotation
- Fellows who desire to improve their clinical expertise in the area of pediatric infectious disease will be allowed to rotate on the Pediatric ID service. The fellow will receive consults at the discretion of the rotational attending. The fellow will either see or review the case with the other ID team members and make initial recommendations. All consults are presented by the fellow and team to the attending within 24 hours of consult and sooner if it is an urgent/emergency consult.

Fellows are expected to be closely supervised by attending physicians in terms of consults. Dr Kari Simonsen MD is the director of this rotation.