



Department of Pharmacy

# Infectious Diseases Residency Manual

July 2018–June 2019



Memorial Sloan Kettering  
Cancer Center



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**Memorial Sloan Kettering Cancer Center Pharmacy  
Department of Pharmacy  
Infectious Diseases Pharmacy Residency Program**

**OVERVIEW**

**MISSION STATEMENT**

The Pharmacy Department at Memorial Sloan Kettering is dedicated to the progressive control and cure of cancer through programs of patient care, research, and education. This has been MSK's mission since 1884.

**PURPOSE**

PGY2 pharmacy residency training builds on the foundations of pharmacy practice established during doctor of pharmacy education and PGY1 pharmacy residency. MSK's PGY2 infectious diseases pharmacy residency provides residents with a 12-month learning experience that prepares them to function independently as clinical pharmacy practitioners in infectious diseases and antimicrobial stewardship (ASP), to serve as fully integrated members of a multidisciplinary team, and to optimize the management of patients with infectious diseases. Upon the successful completion of a PGY2 infectious diseases pharmacy residency at MSK, residents possess competencies that prepare them for future clinical, research, academic, and leadership roles, as well as board certification in infectious diseases pharmacy.

**GOALS OF THE PGY2 INFECTIOUS DISEASES  
PHARMACY RESIDENCY PROGRAM AT MSK**

1. Develop the residents' fundamental knowledge of infectious diseases pharmacotherapy and antibiotic stewardship and build the clinical skills required to practice as independent infectious diseases clinical pharmacists.
2. Emphasize the role of continuous professional development through literature evaluation, didactic lectures, roundtable discussions, and constant self-improvement.
3. Apply evidence-based guidelines and standards in tailoring treatment plans to optimize patient care and outcomes.

## **INTRODUCTION TO THE INFECTIOUS DISEASES PHARMACY RESIDENCY PROGRAM**

The Pharmacy Department at Memorial Sloan Kettering recognizes the value and need for an infectious diseases specialty residency for pharmacists seeking a career in infectious diseases.

### **Purpose**

The infectious diseases pharmacy residency at Memorial Sloan Kettering provides advanced training in infectious diseases pharmacotherapy and ASP, with an additional focus on infections in immunocompromised patients. Through the program, residents establish a knowledge of infectious diseases pharmacotherapy for a variety of medical and surgical patients, both adult and pediatric, in a mostly inpatient setting, with some outpatient experiences. It prepares infectious diseases pharmacy specialists for future clinical or academic positions and board certification.

The antimicrobial stewardship training allows residents an opportunity to develop leadership skills and collaborate with multiple disciplines on quality improvement projects, guideline development, and education.

MSK is committed to conducting cutting-edge research, and the program provides multiple opportunities for clinical research.

### **Required Rotations**

- Orientation to Pharmacy Operations
- Microbiology and Infectious Diseases Orientation
- Antimicrobial Stewardship
- Adult Infectious Diseases Consult (Solid Tumor and Lymphoma)
- Adult Infectious Diseases Consult (Leukemia and Hematopoietic Stem Cell Transplantation)
- Elective (Intensive Care Unit, Adult Bone Marrow Transplantation, Pediatric Bone Marrow Transplantation)
- Research and Vacation

## **Longitudinal Learning Experiences**

- antimicrobial subcommittee
- ambulatory infectious diseases/HIV clinic
- ASP weekend call (one per month)
- research project
- quality improvement project
- leadership and clinical pharmacy administration

The specific program varies based on each resident's goals, interests, and previous experiences. All residents are required to complete rotations in core subject areas considered to be essential to infectious diseases pharmacists. Elective rotations are available to permit the residents flexibility in pursuing their individual goals.

Additional learning experiences are aimed at producing well-rounded residents.

Residents are required to present at educational seminars, including:

- pharmacy grand rounds (Accreditation Council for Pharmacy Education, or ACPE, continuing education)
- case presentations at infectious diseases and pharmacy conferences
- journal clubs (infectious diseases and pharmacy)

## WHO'S WHO?

A number of individuals play key roles in the administration of the Infectious Diseases Pharmacy Residency Program.

### **Pharmacy Director**

Scott Freeswick

The pharmacy director justifies the importance of the residency program and supports the program for budget approval.

### **Program Director**

Nina Orsini

The residency program director maintains responsibility for the residency program. This includes meeting the overall program and specific learning objectives, maintaining training schedules, ensuring appropriate preceptorship for each rotation or training period, and conducting resident evaluations routinely and based on established learning objectives.

### **Program Coordinator**

Marco Scipione

The residency program coordinator supports the residency program director.

Additionally, the residency program coordinator ensures that there is proper documentation of the residents' activities. All activities should be documented in the Pharm Academic system, a software system provided by the American Society of Health-System Pharmacists (ASHP). The coordinator also assumes a leadership role in program administration and program recruitment activities.

### **Preceptors**

Samuel Merrick, Nina Orsini, Marco Scipione, and Samantha Steiger (preceptor in training)

The pharmacist preceptors develop and guide the learning experiences to meet the residency program's goals and objectives, with consideration of the residents' goals, interests, and skills. The preceptors review the residents' performance, with a final written evaluation at the conclusion of each learning experience.



## RESIDENCY PLAN FOR THE YEAR

The program is designed to allow the residents to experience various aspects of infectious diseases practice, including inpatient, outpatient, and research. In order to meet the ASHP's PGY2 standards, the program is divided into three key areas:

1. clinical rotations
2. projects
3. weekend antimicrobial stewardship and pharmacy operations

### 1. Clinical Rotations

Organized rotations provide the structure of the residents' training in various settings. The residents are expected to consider the goals and objectives for each rotation as a foundation for their experience.

Residents are expected to perform independently and demonstrate proficiency in their rotations. The residency preceptors provide guidance and assistance to the residents and ensure that the goals set forth by the residents and the program are met. The preceptors also provide the residents with frequent evaluation of their progress, including a written evaluation at the conclusion of the rotation.

Frequent, clear communication is the key to a successful resident-preceptor relationship. To facilitate the learning experience, the residents are expected to inform the preceptors of all absences, schedule conflicts, or concerns that might arise during the month. Residents also prepare for topic discussions, read materials in a timely manner, and perform other tasks assigned by the preceptors.

The first rotation for pharmacy residents is pharmacy orientation. This rotation is completed during the month of July. The following core rotations are four to eight weeks in length and are required:

#### Rotations (Adult)

Required rotations include:

- Orientation
- Microbiology Laboratory
- Infectious Diseases Consult Services
  - Green (Solid Tumor)
  - Blue (Solid Tumor, Lymphoma, Pediatric Leukemia)

- Red (Adult and Pediatric Bone Marrow Transplant, Adult Leukemia)
- Infection Control
- Antibiotic Stewardship
- Longitudinal (Antibiotic Stewardship Policy and Safety, Ambulatory Infectious Diseases/HIV Clinic)

Elective rotations can vary between residents depending on their future career goals. Elective rotations offered include:

- Bone Marrow Transplant (Adult or Pediatric)
- Intensive Care Unit

## Rotation Schedule

The 12-month resident rotation schedule provides a framework for structured learning activities. The residents meet with the program director at the beginning of the year to form a plan of development. This plan is presented to the Residency Preceptor Committee for evaluation.

Adjustments and changes to the residents' schedules are discussed at each quarterly development plan meeting; as the residents acquire additional knowledge, learning experiences and goals are intermittently reassessed. Residents may request changing or trading scheduled rotations. With the approval of the preceptors for each rotation involved, changes may be referred to the Residency Preceptor Committee for evaluation and the program director for approval.

## 2. Projects

Residents are required to complete one major research project and one medication use evaluation or quality improvement project.

- **Research project:** Each resident selects a project based on their interest and preference. Data collection can begin only after a waiver is obtained from the Institutional Review Board. The tentative research timeline is established at the beginning of the year to ensure that residents remain on track for successful project completion. The residency program director and a research mentor assist each resident with planning, implementing, analyzing, and preparing a presentation and manuscript for publication.

- **Medication use evaluation or quality improvement project:**

These projects are designed to give the residents experience in working to evaluate and improve the management of patients with specified conditions or who are receiving specific therapies. The residency program director and a research mentor assist each resident with planning, implementing, analyzing, and preparing a presentation for the MSK Quality and Safety Fair.

### **3. Weekend Antimicrobial Stewardship and Pharmacy Operations**

The residents cover the antimicrobial stewardship service one weekend (both Saturday and Sunday) a month beginning in August. This experience is designed to increase their independence and build proficiency in antimicrobial stewardship. The weekend shift is variable but is no more than eight hours, generally from 9:00 AM to 5:00 pm.

#### **General Requirements**

1. Residents must be licensed with New York State by October 1 of the residency year.
2. Residents should immediately report to the program director if there is a possible delay in licensure beyond the October 1 deadline. Any resident who is unlicensed by October 1 will continue their assigned schedule but will require additional confirmation of all their recommendations by the preceptor.
3. If a resident remains unlicensed by November 1, that resident's overall performance to date will be reviewed and a decision will be made by the Residency Preceptor Committee as to if termination is warranted. Alternatively, a compensatory weekend coverage plan will be approved.
4. Residents are expected to practice as antibiotic stewardship pharmacists throughout the residency year.

## **Duty Hours**

The PGY2 Infectious Diseases Pharmacy Residency Program adheres to the ASHP's duty hour policy. Duty hours are defined as all scheduled clinical and academic activities related to the pharmacy residency program. This includes inpatient and outpatient care, weekend staffing, and administrative responsibilities (e.g., meetings). Duty hours do not include reading, studying, and academic preparation time for presentations and journal clubs or hours that are not scheduled by the residency program director or a preceptor.

Duty hours are limited to no more than 80 hours per week, averaged over a four-week period, inclusive of weekend antimicrobial stewardship responsibilities.

## RESIDENCY-RELATED COMMITTEES

### 1. Residency Preceptor Committee

The Residency Preceptor Committee is a standing committee of the Pharmacy Department. It is composed of residency preceptors, the residency program director, the residency coordinator, and the director of pharmacy.

The committee serves to advise and maintain the quality and consistency of the residency program.

The committee provides a forum for preceptors to discuss common concerns, to develop additional learning experiences, and to promote new and innovative areas of practice. The committee meets monthly.

The specific functions of the committee include:

- the continuous evaluation of the program's curriculum, goals, and objectives
- monthly evaluation of the residents' progress
- evaluation and support of the residents' projects
- resident recruitment and selection
- providing the program's preceptors with preceptor development vignettes to highlight specific areas of improvement and enhance the preceptors' skills

Meeting minutes are distributed for approval prior to each meeting.

The preceptors periodically discuss the preparation plan for the ASHP accreditation survey.

### 2. Medication Safety Committee

This committee is responsible for guiding the residents to complete the medication safety event assessment. This is a longitudinal learning experience under the preceptorship of the medication safety officer.

## EVALUATION METHODS

An infectious diseases pharmacy residency at Memorial Sloan Kettering offers residents opportunities to obtain the knowledge, skills, and abilities required to become competent infectious diseases practitioners. The specific program varies based on each resident's interests and goals. During the year, the residents' performance is evaluated by rotation preceptors, the program director, and the residents themselves. The residents are required to meet with the rotation preceptors prior to the start of each new rotation, primarily to discuss and customize the rotation's goals and objectives to meet the specific needs of the resident.

### **Rotation Sign-Out Meetings**

The resident, previous preceptor, upcoming preceptor, and resident's mentor (optional) should have a common meeting to review the goals that need to be achieved in the next rotation and to identify the areas for development.

### **Methods for Rotation Evaluation**

A review of the rotation-specific objectives and a resident's objectives should be completed on the first day of each rotation. During the rotation, the residents meet with the preceptors on a regularly scheduled basis, as determined by the preceptors and residents. Any additional modifications to a rotation or its goals and objectives are also discussed. During a rotation there are midpoint and final evaluations. The midpoint evaluation is a verbal evaluation to communicate any areas for improvement, and the final evaluation is a written evaluation documented in Pharm Academic. The final evaluation includes the resident's self-assessment, the preceptor's assessment, a learning experience assessment, and the preceptor's evaluation of the resident's progress during the learning experience. All evaluations are based on the learning objectives. All final and quarterly resident and rotation evaluations must be submitted through the Pharm Academic system.

Development plans are completed quarterly. They are reviewed with the residency program director and emailed to all of a resident's preceptors.

All documents related to rotations, learning activities, weekend coverage, and research should be stored electronically in the shared folder.

## HOLIDAYS, SICK LEAVE, AND ABSENCES

The residents, as part of the professional staff of the department, are expected to assist with holiday coverage if needed.

- The following table highlights legal and floating holidays recognized by the hospital.
- The residents may be required to staff one holiday during the residency year at the discretion of the program director.
- Floating holidays are days when residents are expected to help the Pharmacy Department if needed.

| <b>Legal Holidays</b> | <b>Floating Holidays</b>     |
|-----------------------|------------------------------|
| Independence Day      | Columbus Day                 |
| Labor Day             | Martin Luther King, Jr., Day |
| Thanksgiving          | President's Day              |
| Christmas Day         |                              |
| New Year's Day        |                              |
| Memorial Day          |                              |

### **Paid Time Off**

The residents will accrue approximately five hours of paid time off per pay period (a total of 15 vacation days annually). These hours may be used for the time when the residents are absent from work for illness, to interview for a future position, or for personal leave or vacation.

Residents are entitled to take five consecutive days off during the holiday season. If these five days are not taken during December, they can be taken at any other time upon request. Because the primary purpose of the residency is educational, it is not expected that the residents use all of the time accrued during the residency year. Residents are limited to two days off during any one rotation. Additional time off during a rotation requires special review by the program director with a plan for how the days will be compensated.

All requests for time off must be approved by the residency program director. Requests should be submitted in writing.

The residents are responsible for arranging switches for all other vacation and time off during their regular scheduled weekend. Unlicensed residents are not eligible for schedule switches.

## **Sick Days**

Residents must call or email their preceptor as well as the program director to inform them of any sickness. Residents who are sick are not expected to show up to work. Residents who miss more than two days during a rotation should compensate for the absence; the preceptor and resident should agree on a plan that should be presented to the residency program director.

Residents who take more than two weeks off for any medical issues or family emergencies must compensate at the end of the year. Family and Medical Leave Act papers have to be filed according to the hospital's policies and procedures. A residency program extension of four weeks beyond the scheduled end of the residency year will require documented approval from the residency program director. The maximum time to complete the program is 24 months.

## **Absences**

Residents who do not show up to a scheduled activity and do not notify their preceptor and the residency program director of the absence are subject to counseling.

## **TERMINATION**

Residents can be terminated from the program at any time during the year, after two documented counseling sessions with no improvement. The preceptor committee conducts a formal evaluation of residents in November to address any possible case of termination early in the year. However, this does not remove the committee's authority to terminate a resident at any point after documented counseling.



## TRAVEL AND PROFESSIONAL SOCIETY INVOLVEMENT

Residents are expected to develop and maintain an involvement in professional society activities on a local, state, and national level. Such involvement is critical to the development of the infectious diseases pharmacy residents and the achievement of their professional and personal goals.

1. Residents should plan to join and assume an active role in the ASHP. Activities could include attending the ASHP's midyear clinical meeting, volunteering their services to the society, or attending an orientation session for residents.
2. Residents should plan to join and attend an annual meeting of the Infectious Disease Society of America or the Society of Infectious Diseases Pharmacists (SIDP).

As part of the residents' professional and personal development, travel and attendance at two meetings on a national level is expected.

Funding for attendance at the ASHP's midyear clinical meeting, SIDP, or Infectious Diseases Week is provided by the Pharmacy Department.

## CERTIFICATES

The following requirements must be met to ensure the successful completion of the PGY2 Infectious Diseases Pharmacy Residency Program. Residency certificates will be awarded only to residents who have completed all of the requirements as listed in the offer letter. Documentation of progress and completion of these requirements is assessed on a quarterly basis during the quarterly development plan meetings and at the end of the academic residency year.

### **Residents must:**

1. be licensed in New York State for at least eight months of the residency
2. successfully complete all rotations
3. receive an evaluation of at least 80 percent "satisfactory performance" or greater on all required rotations
4. fully achieve all of the goals and outcomes of the R-1 competency area and a minimum of 80 percent of all the remaining competency areas (refer to the ASHP's required competency areas, goals, and objectives for a PGY2 infectious diseases pharmacy residency)

5. complete a residency research project and medication use evaluation
6. produce a research manuscript in a finalized format that's suitable for publication
7. Submit a research abstract that's been accepted for poster presentation at the ASHP or SIDP annual meeting
8. completed at minimum the following presentations:
  - one ACPE-accredited continuing education lecture
  - four case or didactic presentations
  - three journal clubs

## ACTIVITIES

### MEETINGS

Residents are required to attend a variety of meetings throughout the year. These may include for the Pharmacy or Infectious Diseases Departments, the antimicrobial subcommittee or infection control, the Pharmacy and Therapeutic Committee, the Clinical Council, the Hospital Pharmacy Quality Assurance Committee, the RISQ reading group, the Internal Review Board, and so on. The preceptors assign meeting attendance at the beginning of the month. Meeting times and locations are announced at the beginning of each rotation. Antibiotic subcommittee meeting attendance is required.

### ADDITIONAL ACTIVITIES

#### **1. Residency Program Director Meeting**

The residency program director meeting is at least monthly throughout the year, prior to the preceptor meetings. The purpose of the meetings is to discuss each resident's progress and share advice and support. The meeting prior to the ASHP midyear is reserved for a discussion of potential job opportunities and professional guidance.

#### **2. Residency Interviews**

Residents participate in evaluating potential future residents. Their involvement may start as early as the ASHP midyear clinical meeting. Residents may also participate in scheduling the January and February on-site interviews.

#### **3. Mentoring Future Residents**

In the spring of each residency year, following the results of the residency match, the current residents assist the incoming infectious diseases pharmacy residents. Activities include advice on relocation and housing, licensure, and orientation, as well as mentorship and fellowship.

#### **4. Volunteer Services in an Emergency**

In the event of a serious storm or natural disaster, the residents can be called to assist in pharmacy operations. Residents should therefore respond to MSK's requests to provide service in case of an emergency.

## **5. National Meetings**

If residents are interested in attending any meeting other than the SIDP's, Infectious Diseases Week, or the ASHP midyear, a special request must be submitted to the program director to discuss the benefit of attending the meeting.

## **ENTERING RESIDENT ASSESSMENT**

### **PURPOSE**

The assessment of entering residents provides an evaluation of their baseline clinical skills and experience. It helps identify areas that need further development and provides focus. The assessment also serves as a reference point throughout the year for the preceptors and program director in their evaluations.

The overall goal is to achieve proficiency in the skills necessary to practice as a successful infectious diseases pharmacist as listed in the ASHP's guidance document for the infectious diseases PGY2 residency. Entering resident assessment is also used to build an individualized plan for each resident's development.

### **ASSESSMENT TOOL**

A goal-based development plan is provided to the residents during their orientation period to provide feedback on their current skill level and areas for development.

These specific objectives are included in the residency plan and should be emphasized early in the residency year.

### **CRASH COURSES**

A set of crash courses is given during the orientation period. Crash courses introduce or provide a quick review of core topics that will be further learned during the clinical rotations. Presentation slides, journal articles, or guidelines are distributed to the residents prior to the scheduled sessions.

### **FOLLOW-UP**

The information attained through the initial assessment is assessed throughout the residency year, and the progress of the residents is followed closely by the program director, who acts as an intermediary between the residents and preceptors. Residents should expect the areas identified as needing improvement to be reevaluated as they progress from one rotation to the next. By the end of the year, the residents should have the knowledge and experience required to achieve the goals of the residency.

## **ORIENTATION MONTH**

Orientation starts in July. During orientation, the residents receive:

- hospital orientation (two days)
- pharmacy computer base training (one to two weeks)
- crash courses to ensure that the residents have the same baseline prior to the start of the clinical rotations (crash courses are given in the last two weeks of orientation)
- a plan of development prior to the first rotation

## **RESIDENT PLAN OF DEVELOPMENT**

Consistent with the ASHP's residency standard, each resident will have an individualized plan for development. The residents will document their goals, interests, and strengths. The residency program director and preceptors will help the residents incorporate their development plans and revise them to maximize their learning opportunities and achieve the goals set for each rotation and residency. The residents are encouraged to assume ownership of their training.

The residents and residency program director will review each resident's self-assessment, along with the evaluation comments, and make changes to their development plans in discussion with the residents.

The residents' progress will be evaluated at least quarterly, at which point their development plans will be reviewed.

# EDUCATION REQUIREMENT PROPOSAL

## INTRODUCTION

The establishment of a teaching requirement is consistent with the ASHP's goals, statement, and objectives for infectious diseases residency training. When the residency is completed, it is expected that the residents will have developed competency in teaching healthcare professionals and students.

Each resident is responsible for achieving a sufficient amount of educational experience throughout the year. The system is intended to ensure that each resident masters the minimum requirements for educational experience. Refer to the program's requirements to determine which educational activities are required for successful program completion.

During the residency program, the residents have the opportunity to complete the following educational activities:

1. on rounds teaching other trainees, including infectious diseases fellows, medical students, and NPs
2. a formal ACPE continuing education lecture during pharmacy grand rounds (one per year)
3. journal club (at least two per year)
4. case, didactic, and clinical debate presentations (up to nine per year)
6. preceptorship of one pharmacy student for a one-month rotation (one to three per year as the opportunity arises)
7. preparation of an article for the department newsletter, InPHARMation (one per year)

## EXPECTATIONS FOR EDUCATIONAL OPPORTUNITIES

### ACPE Continuing Education Presentation

The Pharmacy Department gives a monthly continuing education program to healthcare professionals. The residents are responsible for presenting one lecture per year. This allows the residents to practice their presentation skills in discussing a comprehensive and advanced topic. The residents are expected to prepare and master the area in which the presentation is given.

### Journal Clubs

Journal clubs are scheduled to be given once every two weeks. The journal clubs are designed to give the residents experience in critiquing a medical journal article. The residents will evaluate the article beforehand and lead the group in discussion of the article, soliciting opinions from all attendees. The residents have the opportunity to prepare three different journal clubs.

### Clinical Presentations

The clinical presentations are weekly presentations prepared and presented by the residents and fellows as assigned. There are four to six sessions per month, with each resident completing at least six presentations throughout the academic year.

The clinical presentation format is interactive and case based. It should facilitate active learning and encourage audience participation.

### In-Services

An in-service is defined as a presentation of at least 15 minutes in length, with at least three people in attendance.

The residents give in-services on various rotations. These in-services are scheduled by the preceptors and the rounding team members.

## DEPARTMENT NEWSLETTER

The peer-reviewed monthly e-newsletter InPharmation is posted on the Pharmacy Department's website and provides an opportunity for residents to practice their writing skills and effectively and concisely communicate clinical updates to a varied audience. The residents are required to write for the newsletter at least once throughout the year, but additional articles are encouraged. The submissions are due the third week of every month.



## COMMUNICATION SKILLS

Communication skills are critical for pharmacists. While the residents will have numerous opportunities to refine their skills on rotation, the following experiences can build their skills:

1. admission and discharge medication reconciliation and counseling during clinical inpatient rotations
2. patient counseling in the longitudinal clinics, including discussing the patient's disease and drug therapy plan, how to monitor and adjust regimens, adverse effects, and ways to enhance adherence.

The following workflow can be followed when approaching patient care rotations:

- Establish a collaborative professional relationship with team members.
- Prioritize the delivery of care to individuals with an infectious disease.
- Establish a collaborative pharmacist-patient-caregiver relationship.
- Collect and analyze patient information.
- Design an evidence-based therapeutic regimen.
- Design an evidence-based monitoring plan.
- Recommend or communicate the regimen and monitoring plan.
- Implement the regimen and monitoring plan.
- Evaluate a patient's progress and redesign as necessary.
- Communicate any ongoing patient information.
- Document the direct patient care activity.

## RESEARCH PROJECTS

### BACKGROUND

Developing skills in conducting pharmacy clinical research in infectious diseases is required for a successful residency. The residents will formulate a hypothesis to test, develop a feasible design, and secure the necessary approvals, including that of the IRB, for the research project. The residents will also implement a pharmacy research project according to the design and conduct data collection and analysis. The residents will summarize the results and present the research project at the Eastern States Residency Conference. The residents will prepare and submit a manuscript for publication. During this experience, the residents will develop leadership and project management skills. The residents will utilize the month of December to focus on the data collection, however, the other important research activities will require a dedicated time commitment throughout the residency year.

The residency program provides an opportunity for doctors, preceptors, and residents to collaborate on ideas. A structure is in place to facilitate the interaction between the residents and preceptors for the yearlong research experience.

### RESEARCH PROCESS

The application of the knowledge gained in the educational sessions will occur through the completion of the research projects. The research projects will be completed within the residency year. Both the residents and their project advisers are responsible for completion of the projects. The residents will have the proper guidance from the program director throughout the year.

Application of the proper research methods requires knowledge of:

- **Research methods.** Residents need to understand the issues involved in choosing a research design. They will describe the relative advantages and disadvantages between having a pretest, having a control group, and randomization, along with the threats to internal and external validity for each research design.
- **Statistics.** Residents must demonstrate an understanding of the different levels of measurement. They must describe the different statistical techniques used based on the level of measure and the basic statistical tests (students t-test, ANOVA, chi-square).

## PROJECT IDEA GENERATION

Ideas for projects will be provided to the residents at the beginning of the residency year. In the event that a resident would like to develop their own idea, the following must be described in full:

1. Name of the project in one sentence
2. Background: Why is it important?
3. Is the project doable within the residency year?
4. Who will be the project adviser be?
5. Who else would be recommended for the committee?
6. What resources are needed to complete the project?
7. What are the primary outcomes, cost reductions, and patient safety or other issues?
8. What is the impact of the project for the department? For the organization?
9. How will the project help with daily patient care?
10. What will the resident do with the results? Publish? Present?
11. Are there any individuals or departments who need to approve the project?

## PROJECT IDEA APPROVAL

Ideas are reviewed and approved by the residency director. They are then included in the resident's goals and objectives.

## PROJECT IDEA SELECTION

The residents are given ideas to choose from. However, the residents can pick a topic of interest outside the list presented to them.

The residents should meet with the residency program director prior to project selection for review and approval, to ensure that the scope of the project is both challenging in the development of research skills and manageable to complete in the residency year. The IRB's approval should be sought early in the year so that projects are approved by September 14.

## RESEARCH PROPOSAL

The resident and program director are responsible for developing a formal research proposal. The research proposal should have the following sections:

1. **Research question.** A well-defined research question will allow the residents to focus on the correct research design and plan. What exactly are you trying to answer?
2. **Objectives.** Be as specific as possible. The objectives should be quantifiable. You can have a primary objective and multiple secondary objectives for each research question.
3. **Research hypotheses (if applicable).** What relationships do you expect to see?
4. **Background.** Perform a literature review of the research question. Summarize the literature. What has been done? What impact has been shown?
5. **Methods.** How are you going to answer your research question? What is your study design? What measures are you going to need?
6. **Data analysis.** How are you going to analyze the results?

## RESEARCH RESULTS PRESENTATION

The results of the research projects will be presented as poster presentations at the ID conference(s). The residents will also give platform presentations of their research projects to MSK staff. All members of the department will be invited.

The residents will submit written manuscripts suitable for publication to the program director and director of pharmacy.

The residents, in conjunction with the program director, may elect to submit the projects to a journal or for presentation at a different local, state, or national conference.

## RESPONSIBILITIES

While the projects may be the residents', it is important to be aware of intellectual capacity. Thus, the program director should be closely involved in the research. Others working on the research projects may be more or less involved, depending on the areas of expertise required. There are several individuals who will be responsible for successful completion of a research project.

The residents are responsible for investing their time and problem-solving skills into the research. The residents should keep the program director apprised of the progress. The residents are responsible for carrying on the research in a scholarly manner.

## RESIDENCY RESEARCH PROJECT CHECKLIST

### August

- Select project data.
- Select project committee members. In addition to the program director, the committee may consist of at least one additional preceptor.
- Present the project idea to the preceptor. A short written description should include background information, the objectives, the possible methodology, and potential obstacles.
- Submit an IRB waiver to the Pharmacy Research Council (PRC) for approval
- PRC chair submits the waiver to the IRB.

### September to October

- Obtain the IRB's approval.
- Develop the data collection sheet.

### December

- Obtain the data points

### January

- Submit an abstract to the SIDP or Infectious Diseases Society of New York meetings, depending on the published deadline.

**March**

- Present research abstract at the HOPA meeting through a poster presentation

**May**

- Develop a platform presentation, highlighting the key components of the research project.
- Present the platform presentation to the clinical division and Pharmacy Department.
- Present a poster at the Infectious Diseases Society of America's New York City chapter meeting.
- Discuss publication or presentation opportunities with the residency program director.

**June**

- Submit a written manuscript in a publishable format to the residency program director and project mentors for review; revise the manuscript to address suggestions and answer questions.

# RESIDENCY RESEARCH PROJECT IDEA SUBMISSION FORM

## IDEA SUBMISSION FORM

- Research project
- Performance improvement and safety
- Due

Resident: \_\_\_\_\_

## PROJECT NAME:

Background (why is this important?) \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Is reasonable to expect the project will be completed within the  
residency year? \_\_\_\_\_

Who will be the project adviser? \_\_\_\_\_

Who else would be recommended for the committee? \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

What resources are needed to complete the project? \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

What are the primary outcomes? Savings? Patient safety?  
Something else? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

What is the impact of the project for the department?  
\_\_\_\_\_  
\_\_\_\_\_

How will the project help with daily patient care? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

What will you do with the results? Publish? Present? \_\_\_\_\_  
\_\_\_\_\_

Are there any individuals or departments who need to approve  
the project? \_\_\_\_\_  
\_\_\_\_\_



# INFECTIOUS DISEASES PHARMACY RESIDENT MEDICATION SAFETY PROJECT

## Background

A highly visible 1999 report from the Institute of Medicine (IOM) reported that medication errors cause 42,000 to 98,000 deaths in the United States each year. Following this, some critics claimed that the estimate overstated the problem, while others claimed that the estimate was only the tip of the iceberg, citing the fact that errors in the outpatient sector were not considered in the calculation. Everyone, however, agreed that medication-use systems were in need of improvement.

The Pharmacy Department at MSK supports the therapeutic needs of an average of 470 inpatients per day. The pharmacy reviews 1.5 million orders per year and dispenses more than 3.5 million doses per year. Given the large number of medications used at MSK, even a small error rate (e.g., 1 percent) results in many mistakes each day.

The decentralized structure of Memorial Hospital, together with its high medication-use volume and critical patient population, provides an excellent environment for residents to contribute to the safety of our patients. Each resident works on a formal assessment of a medication error or RISQ event that is designed to improve the safety of the medication-use process and completes a presentation describing the project by the end of the year.

## Didactic Training

All of the didactic training provided during the medication safety longitudinal experience will have relevance for this safety project.

- **IOM report:** Read and discuss selected portions of IOM reports on medical errors.
- **Medication error reporting at Memorial Hospital:** Discuss the process used to identify, analyze, and respond to medication errors at MSK.

## Medication Safety Event Assessment

The associate director of patient safety and the residency program director routinely review the MSK RISQ system for medication errors that are appropriate for a formal review or assessment by a resident. Residents are expected to conduct a formal review of at least one medication event during the year, and these assessments are assigned at the discretion of the program director.

## **Medication Event Assessment Committee**

The associate director for patient safety is the adviser to this project. However, a resident may choose a preceptor to be added to the committee. Additional members of the committee include pharmacy leadership and operations pharmacists, depending on the nature of the event. The residents act as the leaders of this committee with the goal of leading the formal event review, highlighting key areas of risk, and facilitating discussion around process and system enhancements to prevent future errors.

## **Medication Safety Event Assessment Presentation**

The results of the safety project will be placed into a PowerPoint format and presented to pharmacy staff and others who have an interest in this area.

## **Responsibilities**

It is the responsibility of the residents to serve as the primary investigators, to draft safety project documents, and to ensure that their projects are completed on time. It is the joint responsibility of the residents and the advisers to work closely together in all aspects of the projects.

## **RESPONSIBILITIES OF THE INFECTIOUS DISEASES PHARMACY RESIDENTS**

All MSK policies and procedures must be followed at all times. Failures may result in corrective actions up to the termination of employment. It is your professional responsibility to observe both moral and ethical codes.

It is forbidden to be under the influence of alcohol, narcotics, or other stimulants and depressants.

As a pharmacist, you are responsible for keeping current with trends in drug therapy, new drugs, drugs removed from the market, and shortages.

Earn respect through your daily interactions with people by the way you conduct yourself as a professional. You should be loyal to your colleagues. If a question is raised doubting the integrity of a fellow pharmacist, give them the benefit of the doubt. To openly criticize another pharmacist without their being able to defend themselves is unjust.

### **TO THE PRECEPTORS**

The preceptors should be treated with loyalty and respect. They are responsible for guiding you to reach your goals. They may do things that you may not completely understand at the time. Have faith in them.

Communicate clearly and in a timely manner with the preceptors. Private or semiprivate discussions must be held in confidence.

If you have a close rapport with your preceptor, you should be ready to accept any criticism, advice, or suggestion that they might offer. This works both ways. You have the responsibility to inform them of issues or suggestions. Through this close relationship, the preceptor and you can discuss issues that would otherwise serve as a barrier between the two of you.

Your preceptor is busy, and their time is valuable. If you feel you need additional time to fully grasp the material or accomplish the objectives for the activity, you have the responsibility of informing your preceptor.

## RESPONSIBILITIES OF THE RESIDENT AT MSK

### 1. **Attendance and Punctuality**

Regular on-time attendance should become a habit. All assignments and projects should be completed on time without additional reminders.

### 2. **Personal Appearance**

A business-casual dress code is required. The following should not be worn to work: open shoes, jeans, cut outs, an open shirt, and miniskirts.

### 3. **Integrity of Character**

Honesty and trustworthiness are required.

### 4. **Desire to Cooperate**

Teamwork is a key for success in a multidisciplinary patient care model, and especially antibiotic stewardship.

### 5. **Improvement and Initiative**

Ambition and seeking self-improvement are very important for learning and moving forward. If you aren't familiar with a topic, disease, or treatment, find out about it before you are asked a question.

### 6. **Enthusiasm**

Be enthusiastic in every step you take. A positive attitude is contagious, and it can open doors for you.

### 7. **Willingness to Work**

You must be ready to serve your patients whenever it is required, even if it means putting in additional time and effort.





Memorial Sloan Kettering  
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