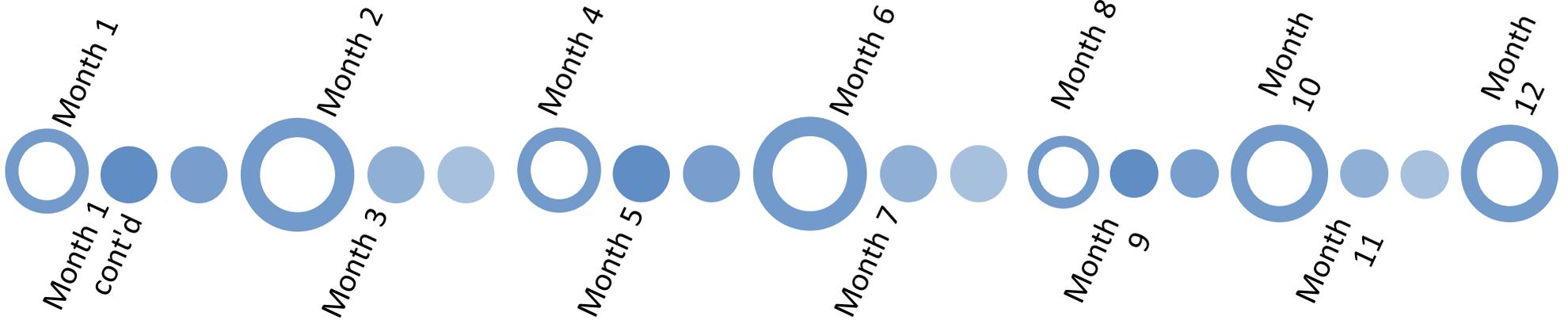


Pharmacy Research - Sample Timeline

ASHP Resources: [Essentials of Practice-Based Research for Pharmacists](#) and [Tips for New Investigators](#)

- Identify research topic
- Identify advisor
- Review ideas with faculty, director, or preceptors
- [Develop research question](#)
- CITI/NIH training with co-investigators
- Identify institutional partners
- [Submit abstract for a meeting](#) (if presenting)
- [Review IRB requirements](#)
- [Formulate a statistical analysis plan](#)
- [Develop project plan including methods](#)
- [Begin grant preparation](#) (if applicable)
- Follow-up with advisor on research progress
- Follow-up on any IRB issues
- Submit grant (if applicable)
- Present poster at a meeting (if applicable)
- [Data collection/entry](#)
- Prepare data for analysis and [analyze data](#)
- Prepare abstract for a final presentation
- Discuss preliminary results with study team
- Submit final IRB report (if applicable)
- Edit and submit manuscript



- [Conduct literature search](#)
- Decide on a hypothesis that is well focused and testable (if applicable)
- Define specific aims
- Test research question/aims with study team
- [Identify study design](#)
- [Obtain departmental support](#)
- Plan study logistics
- [Determine data sources](#)
- Develop data collection form (paper or electronic)
- Format database and discuss with advisor
- Revise project plan and [submit for IRB review](#)
- Finalize study logistics
- Meet with advisor to discuss data collection process
- Test data collection form after IRB approval has been obtained
- Practice poster presentation for an ASHP meeting (if applicable)
- Follow-up with advisor on research progress
- [Data collection/entry](#)
- [Prepare a final presentation](#)
- Practice final presentation with study team
- Write manuscript

Month 1

Timeline Checklist

- Identify research topic
- Identify advisor
- Review research ideas with faculty, director, or preceptors
- [Develop research question](#)
- CITI/NIH training with co-investigators

Take-Home Points

- Select the best question for research¹
 - Ensure the question will allow you to generate conclusions based on an analysis of evidence rather than individual attitudes or beliefs
 - Examine
 - Size – magnitude of the effect that can be produced by an intervention
 - Scope – extent to which existing activities could be affected
 - Scalability – potential for expansion to a substantial outcome
 - Sustainability – potential for long-term support
- Ensure that you have an adequate patient population
 - Large enough to answer the question
 - Focused enough to exclude confounders
- ASHP Resource
 - [Essentials of Practice-Based Research for Pharmacists](#)
 - “Components of a Resident Research Plan – Part 1”
 - “Components of a Resident Research Plan – Part 2”
 - “Identifying Contemporary, Relevant and Practical Research Questions”
 - “Project Management for Residency Projects”

Month 1 cont'd

Timeline Checklist

- [Conduct literature search](#)
- Decide on a hypothesis that is well focused and testable (if applicable - research projects do not always test a hypothesis)
- Define specific aims
- Test research question/aims with study team
- [Identify study design](#)

Take-Home Points

- Review biomedical literature²
 - Begin with secondary literature review – MEDLINE, EMBASE, IPA, CINAHL, CDSR, DARE
 - Confirm the need for investigation
 - Learn from the mistakes of others
- [Turn the research question into a testable hypothesis](#)³ (if applicable - research projects do not always test a hypothesis)
 - Specify the relationship between two or more variables
 - Acknowledge the assumptions associated with the hypotheses
 - Precisely describe how the variables will be measured
- Write one or two specific aims
 - Pick an achievable objective with clear endpoints
 - Start planning your strategy by sketching out methods you could do to accomplish each aim
- [Study design](#)
 - Keep in mind that a descriptive or observational study design may be more appropriate
 - ASHP Resource: [Essentials of Practice-Based Research for Pharmacists](#)
 - “Study Design and Sample Selection”
- [Avoid bias](#)⁴
 - Be mindful of
 - Factors that relate to the exposure of patients to treatments in the population
 - Factors that influence inclusion of patients in the study
 - Factors related to assessment and measurement
 - Apply methods to address bias in design and analysis

Month 2

Timeline Checklist

- Identify institutional partners
- [Submit abstract for an ASHP meeting](#) (if presenting)
- [Review IRB requirements](#)
- [Formulate a statistical analysis plan](#)
(see institutional resources available)
- [Develop project plan including methods](#)
- [Begin grant preparation](#) (if applicable - not all research projects are eligible)

Take-Home Points

- Implementing interventions in pharmacy practice-based research⁵
 - Consider applying the [RE-AIM model](#)
- Measurement instruments⁶
 - Consider reliability, validity, and responsiveness
 - Try selecting an instrument that already exists
- IRB Review
 - Incorporate IRB processes early in your timeline
 - Submit a clear and detailed plan for the research
 - The ASHP Foundation requires evidence of IRB approval before funding research projects
- [ASHP Foundation Research Grant Programs](#)
 - [Master's Resident Practice-Based Research Grant](#)
 - [New Investigator Research Grant](#)
 - [Practice Advancement Demonstration Grant](#)
 - [Pharmacy Resident Practice-Based Research Grant](#)
 - [Research Boot Camp](#)
- Grant preparation
 - Plan more than enough time
 - Ensure that you review your institution's grant requirements

Month 3

Timeline Checklist

- [Obtain departmental support](#)
- Plan study logistics
- [Determine data sources](#)
- Develop data collection form (paper or electronic)
- Format database and discuss with advisor
- Revise project plan and [submit for IRB review](#)

Take-Home Points

- Determine the impact of your research on different departments within the institution
 - Multidisciplinary involvement may be very helpful
- Important questions to consider
 - Will you need to educate other departments regarding the protocol?
 - Do other departments require review by their departmental research committee prior to IRB submission?
 - If medical records review is involved, have all HIPAA implications been addressed?
- Grant Submission
 - Organization is critical as the quality of the grant will have a major impact on funding decisions
 - Pay close attention to application instructions
 - Submit your application to the grants administration office in advance of submission to the funding agency.
- Data Sources
 - Retrospective data is usually easier to collect
 - Ensure that you have adequate data to address your research question
 - Internal data sources: medical records, adverse event reports, prescription claims data, purchasing data
 - External data sources: public and proprietary data sets
- Data Collection
 - Collection form and methods should be tested beforehand
 - Collect more data rather than less
 - Establish data entry and display processes to facilitate analysis
- ASHP Resources
 - [Essentials of Practice-Based Research for Pharmacists](#)
 - “Data Acquisition and Data Cleaning”
 - “Data Management – Part 1”
 - “Data Management - Part 2”

Month 4

Timeline Checklist

- Follow-up with advisor on research progress
- Follow-up on any IRB issues
- Submit grant (if applicable – not all research projects are eligible)

Month 5

Timeline Checklist

- Finalize study logistics
- Meet with advisor to discuss data collection process
- Test data collection form after IRB approval has been obtained
- Practice poster presentation for an ASHP meeting (if applicable)

Month 6

Timeline Checklist

- Present poster at a meeting (if applicable)
- [Data collection/entry](#)

Month 7

Timeline Checklist

- Follow-up with advisor on research progress
- [Data collection/entry](#)

Month 8

Timeline Checklist

- Prepare data for analysis and [analyze data](#)
- Prepare abstract for a final presentation
- Discuss preliminary results with study team

Take-Home Points

- Incorporate adequate time for revision of the abstract
- Seek out review from advisors who were not involved in the research
- ASHP Resources
 - [Essentials of Practice-Based Research for Pharmacists](#)
 - “Data Analysis –Part 1”
 - “Data Analysis –Part 2”

Month 9

Timeline Checklist

- [Prepare a final presentation](#)
- Practice final presentation with study team

Take-Home Points

- Concisely present your research findings in 10-15 minutes
- Consider using flow diagrams to describe methods
- Avoid busy tables or slides that are difficult to read
- Take time to discuss study limitations
- Consider the importance of stance, voice, and eye contact

Month 10

Timeline Checklist

- [Write manuscript](#)
- Give final presentation

Take-Home Points

- Focus on the title, abstract, tables, and figures
- Adopt a standard framework to make it easier to read
- Take time to revise and incorporate feedback
- Adhere closely to the journal's instructions
- ASHP Resources
 - [Essentials of Practice-Based Research for Pharmacists](#)
 - “How to Effectively Present Your Residency Research Project Results”
 - “Anatomy of the Research Article and the Peer Review Process”
 - “Putting It All Together: An Example of a Residency Research Project”

Month 11

Timeline Checklist

- Write manuscript

Month 12

Timeline Checklist

- Submit final IRB report (if applicable – report submission is not always required)
- Edit and submit manuscript

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