

Fellowships:
Another Option for
Post-Graduate Training



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Outline

- Definition
- Who cares? (Relevancy of a fellowship)
- Fellowship Overview
 - Academic fellowship (Example: Bassett)
 - Industry fellowship (Example: Rutgers)
- Before choosing a fellowship...
 - Fellowship selection
 - Potential obstacles
 - Obtaining information
 - Self assessment
- After choosing a fellowship...
 - Expectations of the fellow
 - Expectations of your mentor (boss)
 - Accessing long-term career objectives



Definition

- A research fellowship is a “directed, highly individualized, postgraduate program developed to prepare the participant to become an independent researcher.”*

- However, there is a little bit more to add to this definition...

*American College of Clinical Pharmacy.
<http://www.accp.com/resandfel/guidelines.aspx> (accessed 05 October 2010)




Definition – cont’d

- The previous definition is academically focused.

- The definition does not consider how a fellowship is viewed from an industry perspective.

- The previous definition needs to consider what types of careers/jobs will be available upon completion of a fellowship.
 - Not just an independent researcher



Relevance of a Fellowship

- Identification of research area of interest
- Networking opportunities
- Future employment opportunities (within academia, government, various sectors of industry)
- Promotion of the pharmacy profession*

*Raehl CL et al. Am J Hosp Pharm 1992





Academic Fellowships

- **Setting: College, University and/or hospital**
 - (some fellowships can be divided; 1 year at an academic institution, another year in industry)
- **Duration: 2 to 3 years**
- **Previous experience: Completion of residency is usually required (there are exceptions)**
- **Salary: Not bad! (varies ~\$40K/yr)**
 - Bassett Healthcare from 2002-2004 (\$28-30K/yr)



Academic Fellowships – cont'd

- **Generally an 80/20 split. 80% spent on research-related functions. 20% spent on clinically-related functions.**
 - Key point: The majority of time will be spent on research-related functions
 - This contrasts the amount of time spent for research-related functions for a residency
- **Results are based on 'output' in terms of publications (e.g., manuscripts, abstracts) and completion of a long term, research project.**
 - Quantity or Quality?



Academic Fellowships – cont'd

- **Research-related functions (~80%)**
 - Acquire background knowledge of types of statistical testing (e.g. BE, paired/unpaired t-test, regression analysis, ANOVA). Learn how to use statistical programs (SAS, SYSTAT).
 - Learn how to use PK programs (WinNonlin, NONMEM)
 - Potential for additional didactic coursework
 - LOTS of background reading related to your research project/area of research interest
 - Journal club (related to your research interest/focus)



Academic Fellowships – cont'd

- **Research-related functions – cont'd**
 - **Research project – Will vary. Usually will involve a human subject/drug study.**
 - Other research projects can include data analyses, outcome/epidemiology research
 - Determine your research project at the start of your fellowship
 - Responsible from start to finish (study execution)
 - Protocol write up and IRB submission
 - Study logistics (data collection forms, ordering drug, etc.)
 - Subject recruitment & scheduling
 - Obtain funding
 - Data analysis
 - Poster/manuscript preparation



Academic Fellowships – cont'd

- **Research-related functions – cont'd**
 - **Publications**
 - An example: Minimum 2, first-author peer-reviewed manuscripts were expected (e.g., Bassett fellowship in clinical pharmacology)
 - One publication will be a review article
 - 2nd publication will involve your research project
 - Presentation of at least 1 abstract and 1 poster at a national meeting



Academic Fellowships – cont'd

- **Clinically-related functions (~20%)**
 - **Spend time as the lead pharmacist for in-patient consultations**
 - (e.g., Bassett fellowship; 2-week on call/pager, consultations for pain management, Abx dosing, DDI/drug information requests, etc.)
 - **Training/supervise pharmacy practice residents who run the consult service**
 - **May have to present lectures to pharmacy students**
 - **Note: NO dispensing/RX staffing requirements**



Types of Academic Fellowships

Cardiology	Clinical pharmacology	Critical care	Drug Development*
Drug Information	Family Medicine & Geriatrics	Infectious Diseases*	Nephrology
Oncology	Outcomes, Medication Safety, & Health Policy research	Pain Management	Pediatrics
Pharmacoeconomics	Pharmacogenomics	Pharmacokinetics	Toxicology
Transplant	Translational research		* Most common


Source: ACCP website [accessed 05 October 2010]





Industry Fellowships

- **Setting:** Pharmaceutical or Biotech company
- **Duration:** 1 to 2 years
 - Some fellowships can be divided; 1 year at an academic institution, another year in industry)
- **Previous experience:** None (residency is not required)
- **Salary:** Not bad! (varies; \$40-60K/year)





Industry Fellowships

- **Experiences gained in several areas or departments:**
 - Medical Affairs
 - Medical Communications/Education
 - Global Marketing/Market Research
 - R & D Strategy and Analysis
 - Clinical Operations/Clinical Research
 - Clinical Pharmacology/Early Development
 - Regulatory Affairs



Industry Fellowship: An Example



Rutgers Post-Doctoral Industry Fellowship Program

- Key Program Features
 - Career Path Acceleration
 - Outstanding Alumni Track Record
 - Family of Leading Companies
 - Rigorous Academic Component
 - The Pathway to Industry
 - Website: <http://www.rci.rutgers.edu/~ifellows/>
[accessed 05 October 2010]



Fellowship Requirements

- Rutgers Component
 - Research project
 - Publication
 - Abstract, paper, poster
 - Administration
 - Course coordination
 - Co-chief Fellow
 - Rotation
 - Affiliated teaching/clinical site
 - Fellows are adjunct faculty
 - Other projects (TBD)
- Monthly Seminar Series
 - 1 year Fellows - 1 presentation
 - 2 year Fellows - 1 presentation/yr



Clinical Pharmacology/Research Fellowship Overview

- 2 year fellowships at:
 - Novartis
 - Hoffmann-La Roche
- Clinical Pharmacology
 - Planning/developing Phase I-II studies
- Clinical Research
 - Phase II/III studies
 - Larger, registrational studies
- Medical Affairs
 - Phase IV studies (post-marketing)



Clinical Pharmacology Studies

- Entry into man (First in Human [FIH])
 - Determine the starting human dose based on preclinical PK and toxicology data
 - Determine what methodologies to use to access drug safety
 - Determine inclusion/exclusion criteria
 - Conduct Site Initiation Visits (SIV)
 - Oversee monitoring visits.
 - Determine where the study will be done? Budget? How will the data be collected?
- Work with other members of the team (biostats, global safety, PKPD, immunology, etc.)



Before choosing a fellowship...

- Fellowship selection
- Potential obstacles
- Obtaining information
- Self-assessment




Fellowship Selection

The most important determinant to fellowship selection = Program reputation*

- Choose a fellowship that is right for you
- Questions to think about
 - Are preceptors renowned for their clinical, teaching, or research experience?
 - How long has the program been in existence?
 - How many fellows have completed the program?
 - What is the retention rate of fellows?
 - What career opportunities do fellows pursue when done?

*Sensl BL, et al. Am J Hosp Pharm 1990



Fellowship Selection – cont'd

- Area of research
 - What are the research areas available? Program location? Working environment?
- Potential for career advancement
 - Current positions of past fellows? Will program completion improve employment opportunities or fulfill career objectives?
- Teaching opportunities?
 - Opportunities for didactic lectures? Opportunities for small group or 1:1 teaching of students/residents?
- Benefits package
 - Paid sick, holiday, vacation leave? Reimbursement for professional expenses? Relocation reimbursement? Health insurance coverage?
- Miscellaneous
 - Recommendations from current/past fellows? Amount of salary/stipend? How many fellows are accepted?


Ma JD, et al. California Pharmacist 2004



Identify Potential Obstacles

- Financial
 - Reduced salary/stipend
 - Repayment of student loans
- Options are available
 - Postponement of federal educational loans (loan deferment)
 - Federal agencies (NIH) may be able to repay a significant portion of educational loans*
- Program location
 - Out of state?
- Fellowships that are not ACCP-run programs
- Applicant selection process – academic success
 - NOT the sole factor

National Institute of Health. <http://www.lrp.nih.gov/> [accessed 05 October 2010].



Obtain Fellowship Information

- Key: Don't procrastinate! Start early
- Check with your school's Academic Affairs Office (they may have fellowship contact information)
- Talk to your professors/faculty
- Identify recent graduates who are current fellows
 - Ask questions
- Web-based resources
 - ACCP website (contact preceptors of the program, show an initial interest in the program)
 - Rutgers website and/or other specific websites of where the fellowship is being offered



Self-Assessment

- Maintain good academic standing (grades)
- Show a sincere interest in conducting research
 - Research-related graduation project?
 - Have you worked in a laboratory?
 - Any publications or poster presentations as a result of research?
 - Summer programs?
- Any experience with software programs?
 - Statistics or PK software exposure?
- Communication & writing skills
 - Able to write 'scientifically'
 - Can you explain research findings?
 - Can you defend research findings?




After choosing a fellowship...

- Fellow expectations?
- Mentor (boss) expectations?
- Long term career objectives




Fellow Expectations

- **Meet with your mentor and S-P-E-L-L out your roles and responsibilities (get this on paper)**
 - **For example: Review paper**
 - Who identifies the topic?
 - Will you compose an outline prior to the write up?
 - Who will be first author?
- **Will you have a 'short leash' or 'long leash'?**
 - **No longer a student, but a graduate**
 - Hand-holding versus trial by fire
 - Recall the objective of a fellowship – to be an independent researcher




Fellow Expectations – cont'd

- **Identify and agree to the amount of time spent for research-related and clinical-related functions (80/20, 70/30, dynamic)**
 - **Attempt to identify what research-related functions you want to do VERSUS what functions your mentor wants you to do**
 - "Grunt work" vs. learned experience
 - A balance from both perspectives are needed
 - Access to didactic or off-site training?
 - Funds to purchase textbooks or other educational materials?
 - Is there a schedule set as to when your clinical-duties will occur? Any specific clinical clerkships?



Mentor Expectations

- **Request regularly scheduled 1:1 meetings**
 - Provide project updates
 - Mentor can provide guidance/advice
 - Makes you and your mentor accountable
 - Mentors are always busy!
- **Identify the best method of communication with your mentor**
 - "Old school" – contact the secretary, set up an appointment, meet in person
 - "New school" – email, phone, drop-ins ('plop sessions')



Mentor Expectations

- **Establish and agree on project deadlines (if known)**
 - Draft write up of manuscripts
 - Review of clinical protocols in drug development
 - Abstract/poster/manuscript submission deadlines
- **What professional memberships should you be in?**
 - Will your mentor or program pay for this? If so, how many?
 - Mentor should think about which one is high on scientific applicability and potential networking opportunities



Long Term Career Objectives

- **Year 1 of fellowship:**
 - Talk to past fellows in all areas of pharmacy (academia, industry, FDA, NIH, hospital, insurance companies)
 - Establish an fair perspective of the many areas of pharmacy
 - Identify an area that interests you
 - If you don't know – that's OK
- **Year 2 (or last year) of fellowship**
 - Request that your mentor beginning contacting his/her networks
 - Learn to 'play the game' (qualified for the job vs. sounding desperate for a job)
 - Follow up on any potential contacts/networks from Professional meetings



Panel Discussion



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