**Economic Analysis of Post-Doctoral Programs in a Pharmaceutical Company**

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**BACKGROUND**
Post-doctoral development programs for Pharm.D. graduates have evolved substantially over the past decade and have made a significant impact on the pharmaceutical industry. Few retrospective analyses have taken into account the overall economic implications of initiating and expanding company sponsored and academic affiliated post-doctoral programs. The goals of such programs are to mentor future pharmaceutical industry leaders through real world corporate experiences. Over the years, alumni of industry-based fellowships and residencies have formed a pool of highly marketable professionals. Unfortunately, the value of investing in a fellow or resident from the perspective of a hosting company is often overlooked. Therefore, it is important to evaluate the economic benefit of investing in a post-doctoral candidate, in order to provide company sponsors with evidence that a return on investment is ultimately achieved.

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**OBJECTIVE**
The purpose of this analysis is to establish the economic value of hosting a post-doctoral fellow or Resident as compared to hiring an additional full-time employee (FTE) within related disciplines at Aventis Pharmaceuticals.

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**METHODOLOGY**
- A retrospective economic analysis of costs associated with training programs for Doctor of Pharmacy graduates at Aventis Pharmaceuticals in comparison to a FTE within the respective department.

**Selection Criteria**
- Residents and fellows from the following programs were selected for inclusion in this analysis and then compared to their equivalent within their respective departments:
  - Global Scientific & Drug Information
  - Resident vs. Analyst
  - U.S. Health Economics and Outcomes Research (HEOR)
  - Fellow vs. Manager
  - U.S. Medical Information
  - Fellow vs. Specialist
  - U.S. Scientific Publications
  - Fellow vs. Specialist

**Data Collection**
- Aventis Pharmaceutical Human Resources Department provided cost estimates for recruitment and employment for a company-based Resident and FTE.
- Residency and FTE costs include:
  - Salary
  - Benefits
  - Recruitment
  - Bonus
- Business cases were created by Aventis Pharmaceuticals to receive company funding and approval for university-sponsored fellowships. Cases provided cost information for hosting a fellow for either a 1-year or 2-year program.
- Fellow Costs Include:
  - Salary
  - Benefits
  - Recruitment
  - Tuition Reimbursement (HEOR Fellows)

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**RESULTS**
- Based on visual inspection of the data, a FTE costs relatively twice that of a company-based Resident and a fellow is selected as a fellow (Figure 1A).
- Since the establishment of the Aventis Global Scientific & Drug Information post-doctoral training program in 1998, the number of Aventis programs has increased to include U.S. Health Economics and Outcomes Research, U.S. Medical Information, and U.S. Scientific Publications.
- Total costs in 1998 were approximately $50K whereas in 2003 total company cost exceeded $500K (Figure 2).
- The establishment and growth of the Aventis Fellowship and Residency programs from 1998 to 2003 has resulted in a total savings of approximately $1M on FTEs (Figure 3).

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**CONCLUSION**
Evidence from this economic analysis demonstrates that hiring post-doctoral Fellows/Residents will provide a substantial return on investment to the host company.

![Figure 1A](image1)
![Figure 1B](image2)
![Figure 2](image3)
![Figure 3](image4)

- Although we have only evaluated Aventis-sponsored programs, strong evidence exists for the monetary benefit to the company and quality work output provided by the fellow/Resident.
- The analysis clearly demonstrates that a fellow/Resident offers a substantial cost-savings compared to hiring an associate to fill a vacuum position within the same discipline.
- Fellows and Residents represent an excellent talent pool for positions within related disciplines upon completion of specialized training programs.
- Company sponsors evaluate individuals on a commitment-free basis versus a FTE.
- Skills of innovation, interaction and technical performance can be evaluated, so that an individual with the optimal cultural fit is chosen for full-time employment.
- This demonstrates a financial incentive for the company due to decreased training time and recruitment fees for a FTE.
- Fellows and Residents represent less cost to the company and can possibly be recruited prior to program completion.
- The industry average for recruitment costs for a FTE range from 25-30% of a FTE salary.
- Recruitment costs are potentially reduced to zero if a fellow/Resident is retained at the host company.
- At the completion of their training program, the fellow/Resident will be equivalent at an entry-level FTE.