

## Life as a Statistical Programmer in the Pharmaceutical Industry

The range of opportunities in the pharmaceutical industry is very appealing. Public, charity and private organisations provide millions of jobs around the world, allowing the opportunity for a variety of work and travel.



As a statistical programmer in the industry the majority of your work is done using a powerful data manipulation package called SAS. SAS is a particularly sought after skill within the pharmaceutical industry and opportunities frequently become available for people with these abilities. Although some university courses do teach SAS, the best way to become confident in the use of SAS is by doing on the job training. For this reason, any numerical, statistical or computing degree can lead you into being a programmer in the pharmaceutical industry. Working as a programmer, you can be sure that the skills you acquire can be easily transferred between many of the pharmaceutical companies.

Although many programmers find themselves working in the pharmaceutical industry accidentally, once in, their specialist skills lead to excellent career progression.

Pharmaceutical companies and contract research organisations (CRO's) are very employee orientated and offer their workers plenty of training opportunities. Programmers are encouraged to present at or attend programming conferences both abroad and in the UK. Training courses can be internal, external, in medical subjects or in SAS programming. Learning about new medical areas can prove very motivational for the employee if, for example the work they are carrying out contributes to the treatment of well known illnesses.

Common day-to-day tasks involve programming derived datasets, producing summary tables, listings and figures.

For derived datasets, an agreed specification of the variables required to produce the outputs described in the statistical analysis plan is agreed upon. This describes how variables should be formatted, labelled and derived. Variables could be as simple as calculating a patient's body mass index or age from date of birth to the date of screening for the study or they could be more complicated. Each variable can represent a new programming challenge and you are constantly looking for more efficient methods to derive the desired variables in short efficient programming code.

For summary tables, listings and figures, a shell is provided in the analysis plan that maps out which information should be displayed. Tables show summary statistics for safety or efficacy parameters such as vital signs (blood pressure or heart rate). It is important to see whether a drug is having a different impact on patient's blood pressure or heart rate compared to patients taking a placebo (an inactive control used to determine the effectiveness of a study drug). Listings contain raw data of variables summarised in the tables and details such as what side effects a doctor has observed and comments as to why a volunteer had to drop out of a study.

Drug development is a very costly business and drugs usually take between 10 and 15 years to develop. It is imperative for the safety and efficacy of patients that studies are reported accurately and precisely. For this reason, all reporting undertakes very thorough quality control checking and is completed under strict government regulatory guidance.

The range of drugs produced by pharmaceuticals is striking. One day you may be working on a study drug to relieve pain for arthritis, the next a drug to help cure breast cancer. It is satisfying to know you play a part in creating drugs that may have such a profound impact on peoples' lives. By working on such studies you build knowledge of medical terms and processes. Some companies have separate teams within programming groups for specific therapeutic areas, other companies have all programmers working on a variety of therapeutic areas.

Many companies have a dedicated sports and social club that offer subsidised activities ranging from football and theatre trips to gym membership. Many pharmaceutical companies have their own sports centres allowing you to meet people from other areas of pharmaceutical research. Regular meetings and courses through statisticians in the pharmaceutical industry (PSI) provide a communication network for statistical programmers to share ideas both globally within the company you work for and externally through the people you meet from other companies. In addition to the varied and interesting work, you soon realise that you belong to a worldwide community of professionals.



For more information please go to: <http://www.psiweb.org>  
or contact us at [careers@psiweb.org](mailto:careers@psiweb.org)