

Charting Your Successful Career in Statistics

Much has been reported recently about the slowdown in the economy and the about the tightening in some segments of the job market. Nearly daily we hear of corporate downsizing, layoffs and increased unemployment.

Not so in the statistical area. Fortunately, the market for statisticians at all levels of their careers remains strong. And *Amstat News* wants to tell you why you are so marketable and help you chart your own successful career in statistics. Earlier this month, *Amstat News* sat down with three partners of the leading executive search firm, Smith Hanley Associates, Inc. in a roundtable discussion entitled, "Charting Your Successful Career in Statistics."

Smith Hanley is uniquely qualified to give *Amstat News* readers a perspective of the industry and the outlook for the future. For more than twenty years Smith Hanley has specialized in staffing niche areas that require professionals with quantitative analysis expertise. Headquartered in New York with offices throughout the country, Smith Hanley's partners gave us the benefit of their experience and knowledge with the answers to the questions most often asked. Joining *Amstat News* for the dis-



cussion were Smith Hanley's Tracey Gmoser (TG), Managing Partner for the Pharmaceutical Division; Jacque Paige (JP), Managing Partner for the Statistical Marketing Division and Keith Shelly

(KS), Managing Partner of the Smith Hanley Consulting Group, which provides temporary contract staff to pharmaceutical and medical device companies.

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Give us an update on the market for statisticians.

TG: The market for pharmaceutical and industrial statisticians continues to be very strong. Even with the number of recent mergers in the pharmaceutical industry, the demand for qualified, experienced statisticians is constant. One reason is that the drug development process is highly regulated and statisticians are required throughout that entire process. That, along with the long cycle time, often seven to ten years, ensures a constant and growing need. Also, new biotech and gene-based research companies are emerging, creating more demand for statisticians.

KS: The pharmaceutical contract staffing market is extremely busy. Late phase projects have been in progress for years and require more staffing. These needs are not impacted by short term economic conditions so demand continues as our clients look for contractors to execute their projects right now.

JP: I recruit statisticians in marketing. And like Tracey and Keith's businesses, recruiting in the pharmaceutical industry is quite strong. In this industry, marketing statisticians specialize in market mix modeling or promotion response analysis. Pharmaceutical companies are always ready to expend resources on how to best structure their sales forces and how to spend dollars on sales force calls on doctors and direct to consumer advertising. Other industries have slowed the recruiting of the marketing statisticians due to the tightening in the economy. I envision this tightening to last another six months until the economy starts to grow again. This return to growth should bring the recruiting of marketing statisticians back to the strong levels of last year, particularly in the direct marketing industry, which includes financial services and publishing.

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What are clients looking for in candidates?

JP: On the marketing side, the level of sophistication in statistical skills is as strong as on the biostat side mainly because of the abundance of data. There is so much data now; so much

information out there to be analyzed that statisticians can do quite interesting work that directly impacts the bottom-line of their businesses. An individual who wants this clear and quick evidence of his or her work would be attracted to a marketing career. This same individual must have the ability to translate those more sophisticated analyses for their non-technical internal or external clients, in order to lead to those profitable results. First and foremost, you must be a good statistician. In marketing, this means graduate education at the Masters level. There is limited opportunity at the Bachelor level, and PhD's in statistics are often viewed as too academic or too research oriented for marketing careers. However, PhD's in other disciplines—economics and the social sciences—are sought after in marketing.

TG: Communication skills are more important than ever before. When clients evaluate candidates they, of course, look at their core technical skills but all of our clients say they want a good communicator. At a minimum, that means the ability to talk to non-statisticians about statistical matters. As statisticians become more experienced, clients expect added value beyond statistical skills. What can you contribute to cross-functional teams and the business process? Clients are trying to evaluate your potential as a current or future decision maker, manager and leader. Often companies require a seminar during the interview. At the entry level, it's typically a technical talk. For experienced candidates, it can be technical and is often related to a high impact project. That is great assessment tool for the client and provides a chance for the candidate to demonstrate his/her communication and problem solving skills

KS: Most of our clients are looking for contract candidates who have solid clinical experience preferably in the pharmaceutical industry. Contractors who can work with minimal supervision, meet time lines and communicate with the statistical team leader are very attractive to our clients. Rarely do clients hire entry level or very junior candidates unless they have extensive programming experience.

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What are candidates looking for in positions?

KS: Most of the junior candidates with whom we work are looking to gain their first experience in the pharmaceutical industry. By gaining this experience, they can then choose the best future opportunities for themselves. Senior candidates look to enhance their technical skills or expand their knowledge by working in different therapeutic areas or phases of a clinical trial. Salary and location are big factors as well. A lack of a visa attracts candidates to contract too. Most established contract companies will sponsor long-term employees for a Green Card since many clients seeking permanent employees won't hire a candidate without a proper visa. Smith Hanley Associates, Inc. will sponsor the candidate for a visa and do all the paperwork work so that they can be converted to permanent staff with the client in the future.

TG: Statisticians in the pharmaceutical industry have the same issues as candidates in other disciplines. They're looking at job content, career path, compensation and opportunity. More recently, I've noticed candidates are concerned about which rung they are on the technical or managerial ladder. Then they compare that with where they are in their current company. So even if the compensation is better, if the job responsibilities of a new position look similar or they are at the same place on the technical ladder as their old firm, they're not as interested in making a move. Beyond that, they look for exposure to new projects and increased responsibility. Companies that are very good in professional development, giving candidates visibility beyond the functional role of statistics by providing training and opportunity, will keep and attract top candidates. As candidates get more experience, they look at management style or culture of a company and what future roles are beyond the technical ladder. That could be cross-functional, like data management or project management. Or, it may be in a different division of the company providing a chance to build or head up a smaller biometrics group.



JP: In marketing, there are two tracks you can take as a statistician. There is the technical track where you would choose to go with an organization that has a larger statistical group, around forty statisticians, so that you can stay hands-on technically, yet still have an opportunity to advance. And then there are a whole variety of different options open to a marketing statistician who wants to interface with clients, both external and internal. This statistician feels they have the communication skills and the savvy to apply statistics to client needs which moves them beyond the "back room." They still like to utilize their technical skills but they want exposure beyond the statistics.

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How many jobs should a person take within his/her career? Is there a rule of thumb here?

JP: No, I don't think there's a rule of thumb. I think it does become an issue in someone's background if they don't have tenure of at least four to five years at any point their career. If you move every year or every two years, there tends to be a question mark in a hiring manager's mind as to whether you will stay with them long enough to put to use what you have learned about their company for their company's benefit, and not just to benefit your own career.

TG: I agree with what Jacque said. A series of short-term jobs can indicate a narrow range of experience. If you don't stay at one company long enough, you lack the ability to drill down, and participate in full project cycles and that doesn't expand your skills. Yes, you will increase compensation, but often you end up doing the same job. The next employer will acknowledge your technical skills, but question your project ability.

KS: This is where contract and perm really differ. Contractors can have a variety of positions on their resumes without a negative impact. Some candidates have been working at the same positions for several years, while other candidates have had five different positions over a five-year period. A client wants someone who has certain specific

experience, so a larger number of previous engagements may actually make a candidate more desirable.

JP: Some of the candidates have switched from perm to contract because they like the flexibility. Occasionally, a parent might want to have three months off in the summer when their kids are off from school, or families want to take an extended vacation. If both parents are contract it allows both the mother and the father to travel as a family. So, there is some flexibility and independence that the candidate would like about going contract, yet if they work with a firm like Smith Hanley that places them on assignment, they don't have to do the hustle to find the next job...Smith Hanley will do that for them.

KS: Contract positions allow candidates to maintain their technical roles at a very competitive compensation without the need to take on projects or people management responsibilities, avoiding corporate, administrative duties and politics. This allows them the flexibility to continue earning those high dollars without investing in parts of the job that they may not enjoy as much.

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Tell us how companies can retain the best people.

JP: Job fulfillment. In smaller companies this is achieved by providing a statistician with more exposure at a more junior level to a variety of groups within the company and a variety of statistical applications. In a larger organization, there is the opportunity to advance within a statistical career path. They can bank on their statistical skills, but combine it with management experience for greater job fulfillment.

TG: Technology and globalization have really changed the way drug companies do business. And that means that there is a greater chance for an employee to feel disconnected either from his or her job as technology outpaces them or from their company as the functions become more global. Companies that manage this process and keep candidates informed and focused on company direction setting clear goals, have a good reward system and provide oppor-

tunities both technically and cross functionally do the best job of retaining talent. That doesn't mean they pay the most money either, companies that have the highest compensation don't necessarily have highest retention.

JP: Tracey makes a good point. When there's a hot new technique - a hot application - candidates like to go to those companies that are making use of this application. For instance, neural networks were a hot commodity for a while in the marketing arena, and people really wanted to work for a firm that would encourage them to use and gain experience with it, and hopefully do better work as a result.

KS: Candidate retention is very important for all of our clients and for us at the contract company. We both wish to maintain the same consultants throughout an entire project, and, by doing so keep from having to replace and train new personnel. To retain the best consultants, it is important for client companies to engage their consultants in challenging projects, while the contract company needs to provide competitive salary and benefits, professional development and a large list of clients to ensure the next assignment.

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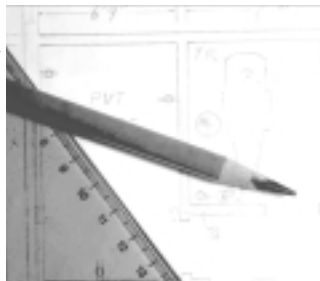
Keith do you see any trends in terms of contract staffing converted to perm staff?

KS: Clients have always wanted to convert excellent contractors to permanent staff when they have available headcount. Since the contract employee has been there at the client site, both the client and employee already know that it is a good match. Frequently, the consultant wishes to remain as a contractor since the compensation tends to be higher than that of a perm position.

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What's the outlook for statisticians in your area — say six months or twelve months down the road? We are not expecting you to have a crystal ball, but do you see job market for statisticians continuing to be a relatively strong one?

KS: I expect the hiring outlook for contract staff to remain strong for the next 6 to 12 months.



TG: The market is still robust. New drugs need to be developed. The trends that I see are on both sides of the drug development process. On the front end in discovery, the pre-clinical side, there is a lot of growth. That includes genomics and bioinformatics. Here computing, sciences and statistics come together providing new opportunities for methods development and collaboration. The other area is post marketing, after the drug is approved Companies look to maximize their initial developmental cost through new indications and expanded patient profiles as well as keeping marketed product in front of clinicians.

JP: Short term, marketing statistics, as I've said before, is really very strong in the market mix-modeling area - an application that is utilized in the pharmaceutical and packaged goods industries. Those industries are strong, probably for the reasons that Tracey gave. They still are creating new drugs and new food products. The other side of marketing recruiting, direct marketing, in many industries—consumer credit, financial services, publishing and catalog— is much slower right now. I hope the economists at the big financial institutions are right and the economy will start to grow again in the fourth quarter. As soon as that happens, direct marketing statistical recruiting will be as strong as it has been for the past ten years.

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Any final words of career guidance or wisdom which you would like to give to the readers?

TG: Know yourself. Assess your strengths and then evaluate your career goal. If you are beginning your career in statistics, think about the kinds of problems you want to solve and who you want to work with. In biostatistics, you are interfacing primarily with scientists and MD's. In manufacturing, its engineers and in business, its MBA's and marketers. Project length and methodology are different in each application. The precision required in a clinical trial is very different than the amount of error allowed in a direct mail campaign. As you progress in your career learn as much as you can about your business. Be open to new opportunities and go beyond your job description. The reward can be innovative and creative work giving you valuable broader experience and an enjoyable work life. ■

A Statistician by any Other Name Still Solves Problems

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Whether or not they possess the title of statistician, those with statistical training will see favorable job opportunities really add up over the next few years.

According to the United States Bureau of Labor Statistics (BLS) employment of those with the title of statistician will grow little through 2008. But many professionals with bachelor's degrees, and a few master's degree holders as well, will be employed in jobs that don't bear the title statistician, but do involve analyzing and interpreting statistics from such diverse disciplines as engineering, psychology, economics, meteorology and biological science.

"The market for statisticians has been and continues to be very strong," said Ray Waller, executive director of the Alexandria, Virginia-based American Statistical Association.

"The reason is that statisticians are problem solvers, he said. They use their skills to improve decisions that have major consequences in the areas of safety, the environment, product performance, health and economics...it's the breadth of applications that make statisticians valued members of multi disciplinary problem-solving teams."

Statisticians design surveys and experiments, gather information and data, and analyze, summarize and interpret the results of the surveys or experiments. Most of the time, that analysis and interpretation is performed with the help of advanced software systems.

Statisticians play an important role in quality improvement within manufacturing companies. A statistician might devise a statistical model to help determine the effect of extreme weather conditions on automobile engine performance, or develop an experiment that can help a chemical company decide what chemical combination can be used to create a new product.

Government posts account for about

STATISTICIAN

Median salary: \$48,540

In 1998

EDUCATION/TRAINING

Bachelor's or master's degree

OUTLOOK

Favorable

one-quarter of the statistician positions in the U.S. The remainder are employed in academia or in private industry.

To gain entry-level statistician positions, job candidates are expected to have earned bachelor's degrees in statistics or mathematics. Typically, those in entry-level jobs work under the close supervision of experienced statisticians, over time advancing to more responsible positions. Master's and PhD degree holders tend to have the greatest opportunity for promotion, and are most qualified to undertake research or develop statistical methods.

According to Waller, most statisticians don't work alone in "ivory tower" settings, but rather as part of teams. For that reason, their communication skills should be as good as their statistical talents. "The communication skills are very important to a statistician in that they must be able to communicate with the client regarding the understanding of the problem, and then communicate the analysis to non-technical audiences," he said.

Citing figures from a 1999 survey by the National Association of Colleges and Employers, the BLS reports average starting salary for mathematics/statistics graduates was \$37,300 a year. Average annual salary for statisticians employed in non-supervisory, supervisory and managerial positions in the federal government was \$62,800 in early 1999. The median annual earnings for statisticians was \$48,540 in 1998. ■