CASE STUDY

NSCCHS Uses Minitab to "STaMP" Staff with Statistical Knowledge

When quality analysts from the NSCCHS wanted to develop and launch a statistical training program for their staff, they turned to Minitab Statistical Software.

KEY FACTS

ORGANIZATION

NSCCHS

OVERVIEW

- 11 major healthcare facilities
- Serves a population of 1.1 million
- 14,000 staff members
- Covers 2, 500 square kilometers (over 1,500 miles)

QUALITY CHALLENGE

Create a program to train staff to use statistics to maximize patient care.

PRODUCTS USED

Minitab® Statistical Software

RESULTS

- Implemented successful statistics training program
- Improved patient care across facilities
- Award-winning program.

The Northern Sydney Central Coast Health Service (NSCCHS) began conducting quality improvement projects in several of its 11 major facilities in the mid-1990s. These efforts, which applied statistical process control (SPC) techniques to monitor and reduce variability in health-care processes, proved to be very successful. But while the projects benefited the NSCCHS and demonstrated that statistical analysis could be a key component in making life better for patients, they also revealed a need for targeted education and ongoing support for staff members who needed to use statistics to tackle quality challenges. In response, the NSCCHS developed and launched a comprehensive Statistical Thinking and Methods Program, known as "STaMP." In the decade since STaMP's founding, the program has dramatically enhanced statistical understanding among staff, giving them access to the tools needed to transform statistical data into knowledge and improved patient care. To convert their data into results, the organization relies on Minitab Statistical Software.

The Challenge

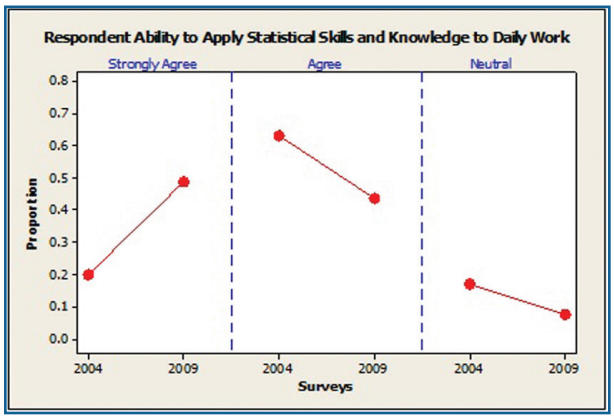
In 1996, a quality improvement team from the NSCCHS Royal North Shore Hospital used quality tools to reduce the time maternity patients spent in the hospital after giving birth. The project significantly reduced patient stay-time and earned the hospital a Quality Management poster prize at the International Society for Quality in Healthcare conference that year. However, there was limited opportunity for the Royal North Shore quality improvement team to spread the initiative outside of the maternity unit of the hospital—let alone to the 10 other NSCCHS facilities. Data was being collected throughout the organization, but few staff members were trained in performing and applying statistical principles.

"A staff survey revealed that we were drowning in lots of data, but we had little information about what that data meant," says Helen Ganley, NSCCHS quality analyst.

Ganley and a team of other NSCCHS quality analysts developed a plan to institute quality initiatives across the entire organization. Their goal was to improve the capacity of staff to effectively transform data into knowledge, and appropriately act on insights to improve patient care. Their challenge was to create a program that would allow staff to use statistics to maximize patient care without burdening them with the need to actually become statisticians themselves.

How Minitab Helped

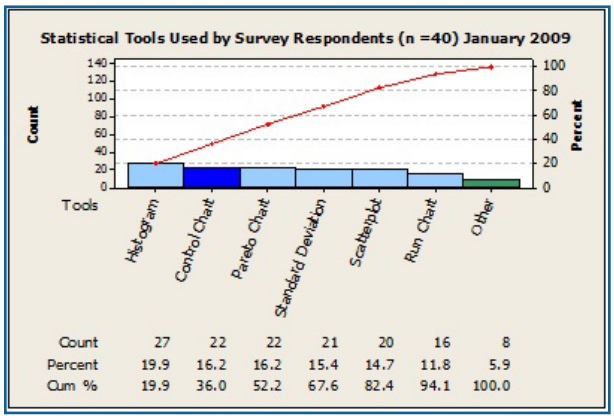
As the STaMP program got under way, the NSCCHS selected Minitab Statistical Software as a key component of its implementation. Minitab's simple user interface combined with its thorough help system made it easy to train staff, regardless of their statistical know-how. Because a main goal of STaMP is to educate and train a critical mass of staff to produce statistical analyses, the NSCCHS's corporate Minitab license made the software accessible across the entire organization. Soon, the program's first set of trainees were using tools like control charts, histograms, and scatterplots to analyze and interpret their data.



A Minitab run chart was used to compare staff survey data from 2004 to 2009, and showed quality analysts that after STaMP, staff who strongly agree they use statistical knowledge in their daily work has increased by more than 30%.

To sustain their statistical knowledge and expand staff skills over time, STaMP founders organized several types of continuous training that used Minitab:

- STaMP holds regular Minitab workshops to coach staff on various facets of the software. The workshops are taught using Minitab's unique StatGuide™, which provides practical, easy-to-understand guidance for interpreting analysis results, tables, and graphs.
- Quality analysts developed a Minitab "Survival Kit" for staff who are learning to use the software. The kit includes Minitab worksheets, information on control charts and quality tools, and appendices that help staff navigate and choose the correct data analysis technique.
- The program's quarterly STATUM e-newsletter provides technical statistical information, as well as a "how to" of basic and advanced statistical tools, NSCCHS performance information and resource links, and tips to use Minitab more effectively and efficiently.

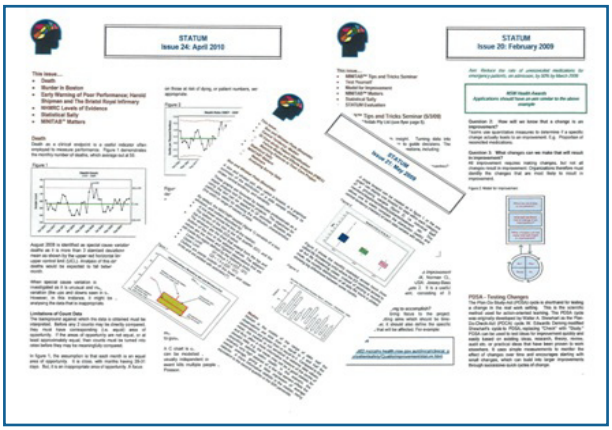


NSCCHS used various Minitab tools including this Pareto chart to analyze their survey data and identify new training opportunities.

- Private mentoring and consultations are available to all staff performing data analysis.

The quality analysts who manage the program also practice what they preach: when they were ready to evaluate the success STaMP based on the effectiveness of training tools like seminars and STATUM newsletters, they used Minitab to do it. Minitab Pareto charts, run charts, and boxplots created from staff survey data

helped the team quickly validate that the staff's statistical knowledge has increased as a result of STaMP. The Minitab output also helped them identify opportunities to improve their training and materials.



STATUM e-Newsletters featured tips and resources to use Minitab software more effectively, and were just one of the training techniques STaMP organizers used to educate their staff to analyze data.

Results

Before STaMP, few NSCCHS staff were trained to apply statistics in the workplace and many felt uncomfortable performing any type of data analysis. Now staff are using Minitab to easily apply statistical techniques regardless of their statistical background. A recent survey indicates that since STaMP's implementation, staff who strongly agree that they use statistical knowledge in their daily work has increased by more than 30%.

As the NSCCHS benefits from the increased number of confident and knowledgeable statistical thinkers, STaMP has yielded several quality improvement successes, including an increase in the quality of care administered to patients with wounds. Another more recent project decreased the amount of inpatient blood collection and labeling errors, which kept patients from receiving unnecessary treatments, incurring unnecessary costs, and staying longer in the hospital than necessary.

STaMP has established itself as an award-winning program, recommended for use in clinical environments around the world. But best of all, by making it easy for staff to apply the power of Minitab Statistical Software to quality improvement, StaMP makes the lives of hospital patients better.