

# USC News

## Regulatory Science students visit Bay Area Manufacturers

By Laura Sturza

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The USC School of Pharmacy's Regulatory Science students this summer toured two of the San Francisco Bay Area's major pharmaceutical and medical device companies. They saw firsthand the operations at Boehringer Ingelheim, one of the world's top manufacturers of biopharmaceuticals, and Stryker, a leading medical technology company.



As part of a course on quality control, Program Director Dr. Frances Richmond wanted students to have a close look at the "richness of companies in the Bay Area." Students from the program regularly visit companies in Southern California with the goal of gaining additional access to real world operations.

At the Boehringer Ingelheim plant, students toured a 300,000 square foot facility with its glass-encased production areas, which the company considers symbolic of its transparent style of producing biologics. Biologics include vaccines, tissues and gene therapies, among the most complex pharmaceutical products to produce. They differ from chemically produced products because they are made entirely from living materials, such as cells and tissues, and consequently require the highest level of quality control standards in order to prevent contamination from harmful bacteria.

The size of the equipment and the high level of quality control performed by both the people and computers surprised master's student Kunjan Shah.

"We've read about it but now we have a better understanding [of the operations]," she said.

Students also visited the Stryker facility, which produces equipment used in operating rooms, such as arthroscopes, the fiber-optic instruments that are surgically inserted in order to examine a joint's interior. Stryker developed the first high-definition camera for surgical use during endoscopic procedures. The company also was the first to combine voice activation, infrared technology and high-definition video, allowing surgeons to control equipment by using not only their hands but their voices. At Stryker, Shah learned that many of the products are built by hand.

"We saw such minute parts of the devices that we see in finished form at medical stores and hospitals," she said.

Shah's goals for her future as a regulatory scientist include helping her future employers to produce effective products efficiently and to create products that provide "minimal risks and maximum benefits" to those who need them.

For more information on the program, [visit regulatory.usc.edu/Index.html](http://visit.regulatory.usc.edu/Index.html) or email [regsci@usc.edu](mailto:regsci@usc.edu) or call 323-442-3521.

Top photo from left, regulatory science students Kunjan Shah and Yue Shen at Stryker Endoscopy in San Jose, CA (USC Photo/Laura Sturza)

Lower photo: Boehringer Ingelheim's Fremont, CA manufacturing facility (Photo/courtesy of Boehringer Ingelheim)