



# News Release

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## ECBC Mentors Help SMA Senior Publish Capstone Project Results for Peer Review

**Aberdeen Proving Ground, Md.** — Serving as mentors in the local community, Operations Research Analyst Daniel Barker and Research General Engineer Karen Coyne, Ph.D. from the U.S. Army Edgewood Chemical Biological Center (ECBC) have supported Briana Elmore, senior at Aberdeen's Science and Mathematics Academy (SMA), with her capstone project efforts over the course of the past year.

With guidance from her mentors, Briana achieved outstanding capstone project results and became the co-author of a peer-reviewed presentation and technical report, entitled "Field of View of Commercial Air-Purifying Respirators".

Her research results will be presented at the 2011 American Industrial Hygiene Conference and Expo, known as the premier event for thousands of occupational and environmental health and safety professionals, at the Oregon Convention Center in Portland, Ore. on 18 May.

Drawing from her experience as a cooperative education student at the U.S. Coast Guard Electronics Engineering Center, Coyne decided to pass on the educational value of mentorship relationships that motivated her to stay in the engineering career field. In addition to judging eCYBERMISSION project folders, she strongly believes in the benefit of engaging students in the application of real-world science, technology, engineering and math (STEM) experiences through mentoring.

"We have the ability to shape students' interest in STEM by showing them science in action," she said. "I truly enjoy providing students guidance throughout the entire life cycle of their projects."

Barker, who started his government career through the Science and Engineering Apprenticeship Program and the Federal Junior Fellowship Program, had received mentorship support early on and finds it rewarding to help local students expand their knowledge of STEM concepts and apply them to relevant real-world problems.

"Mentoring a student that works as independently and is as driven as Briana allowed us to use her research skills for a meaningful project that we were able to steer and that helped her excel quickly," he said. "Her literature review clearly demonstrated her ability to compete with undergraduate students."

After participating in a tour of ECBC's Protection Factor Testing facility, she decided to test military and first-responder respirator technologies as part of her senior capstone project. In order to compile and analyze relevant data for her project, she independently performed testing procedures on commercial air-purifying respirators (APR) with little supervision in an ECBC

laboratory and generated successful project results.

“She used standardized testing procedures to measure the peripheral field of view of various commercial APRs and to quantify their vision limitations,” Coyne explained.

“During an interim presentation at her school, she conveyed project background and results exceptionally well and knew what she was doing. I had nothing to add,” Barker commented.

Both mentors emphasized Briana’s exceptional talent and motivation to understand, implement and execute engineering concepts very effectively.

“We put the project into a relevant context, highlighted the importance of attention to detail for the operational performance in law enforcement and the military and explained the required testing methodologies for this project,” Barker said. “After we showed her a method once, we did not have to show her a second time.”

“She just rolled with the guidance we gave her and was always way ahead of the game,” he added.

Proving herself as an invaluable team member, she has been nominated to support respirator-related research at ECBC through the Oak Ridge Institute for Science and Education over the summer — the same way her mentor Coyne had begun her career at the Center.

“I think Daniel and I both agree when saying that Briana has been fabulous to work with,” Coyne reiterated. “I would encourage colleagues to take advantage of mentoring opportunities, as these kids are capable of doing real work and can be at least as beneficial to a team as a college intern.”

For more information about ECBC, visit <http://www.ecbc.army.mil/>.

*ECBC is the Army’s principal research and development center for chemical and biological defense technology, engineering and field operations. ECBC has achieved major technological advances for the warfighter and for our national defense, with a long and distinguished history of providing the Armed Forces with quality systems and outstanding customer service. ECBC is a U.S. Army Research, Development and Engineering Command laboratory located at the Edgewood Area of Aberdeen Proving Ground, Maryland. For more information about the Edgewood Chemical Biological Center, please visit our web site at <http://www.ecbc.army.mil/> or call (410) 436-7718.*