

## The Bridge

He's a doctor—an emergency physician, actually—who is on the engineering faculty . . . and he sees his job as building bridges, but not the concrete or steel variety. Dr. Joseph Barbera, a member of the Department of Engineering Management and Systems Engineering (EMSE) faculty, sees management science as the bridge that can connect colleagues across disciplines that otherwise do not often communicate or coordinate with each other.

Early in his career, Barbera worked as an emergency physician in a public hospital in the Bronx, where he dealt with a large number of trauma cases from handguns and other violence. He later joined a volunteer medical team that responded to deep coal mine fires, roof collapses, and other mine emergencies. His experience with trauma and with medical care in the austere coal mine setting prepared him for subsequent work as FEMA's point person developing the medical elements of the national urban search and rescue system. He learned quickly that “for medical personnel working in a complex task force, an effective management system is required,” but he says, “the principles for healthcare delivery are the same across disaster types.”

Barbera came to the GW Medical Center in 1993, and in 1994 Professor John Harrald of EMSE, Dr. Barbera, and Professor Gerald Post of GW's Elliott School co-founded the Institute for Crisis, Disaster and Risk Management. Since moving to the EMSE faculty in 1999, he has focused on teaching emergency management principles and on a number of successful research initiatives. His Institute research team produced a framework for the U.S. Department of Health and Human Services that coordinates healthcare resources across levels of government and the private sector during disasters; it is now a central strategy in the national Hospital Preparedness Program. He co-developed an emergency management curriculum for the Department of Veterans Affairs (VA), which the VA applied nationally across its healthcare facilities. And, an emergency volunteer management system that his team developed for Arlington County, VA, is now widely used in other locations.

Barbera also continues his work as an emergency medical responder, working both nationally and internationally. His most recent effort was with the U.S. Government's search and rescue task force sent to Haiti following the January 2010 earthquake. Barbera blends his medical and management expertise in emergency response, but believes that “by focusing on management issues you can in some ways make a much bigger impact than by focusing primarily on the technical medical issues. Moving resources, for example, is a management issue in disaster response, and you can make a relatively big impact with a relatively narrow amount of work.”

“At the end of the day, engineering is a science, medicine is a science, and management is a science,” he muses. “And if they respect each other, it's not that hard to construct an operating system that can incorporate all three; really, the bridge is the management science.”

**ON-CALL:** In addition to teaching and doing research, Dr. Joseph Barbera serves as an emergency medical responder, working both nationally and internationally.



### PROFILE

**Chair:** Julie J. C. H. Ryan  
202-994-7541

**www.emse.gwu.edu**

**Full-time faculty:** 16

**Undergraduate students:** 36

**Graduate students:** 1,297

**Annual research expenditures:** \$3.6 million

### FACULTY

Hernan G. Abeledo, **ASSOCIATE PROFESSOR**

Joseph A. Barbera, **ASSOCIATE PROFESSOR**

Enrique Campos-Nañez, **ASSISTANT PROFESSOR**

Jonathan P. Deason, **PROFESSOR**

Michael R. Duffey, **ASSOCIATE PROFESSOR**

Howard Eisner, **DISTINGUISHED RESEARCH PROFESSOR,**

**IEEE AND INCOSE FELLOW**

Royce Francis, **ASSISTANT PROFESSOR**

Thomas A. Mazzuchi, **PROFESSOR**

E. Lile Murphree, **PROFESSOR**

Julie J. C. H. Ryan, **ASSOCIATE PROFESSOR**

Joost Reyes Santos, **ASSISTANT PROFESSOR**

Shahram Sarkani, **PROFESSOR**

Gregory L. Shaw, **ASSOCIATE PROFESSOR**

Michael M. Stankosky, **PROFESSOR**

J. Rene van Dorp, **PROFESSOR**

### RESEARCH AREAS

**CRISIS, EMERGENCY AND RISK MANAGEMENT**

Barbera, Mazzuchi, Santos, Sarkani, Shaw, van Dorp

**ECONOMICS, FINANCE AND COST ENGINEERING**

Duffey, Santos, van Dorp

**ENGINEERING AND TECHNOLOGY MANAGEMENT**

Deason, Duffey, Eisner, Murphree, Shaw, Stankosky

**ENVIRONMENTAL AND ENERGY MANAGEMENT**

Deason, Francis

**INFORMATION ASSURANCE**

Ryan

**KNOWLEDGE AND INFORMATION MANAGEMENT**

Ryan, Stankosky

**OPERATIONS RESEARCH**

Abeledo, Campos-Nañez, Mazzuchi, van Dorp

**SYSTEMS ENGINEERING**

Campos-Nañez, Duffey, Eisner, Mazzuchi, Ryan, Santos, Sarkani, Stankosky, van Dorp