Northeastern University
Healthcare Systems Engineering Institute

NEWS RELEASE
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FOR IMMEDIATE RELEASE

Healthcare Systems Engineering Institute graduates 2015 summer interns from 21 states from its 7th annual healthcare systems engineering internship program

The Healthcare Systems Engineering Institute at Northeastern University graduated its seventh class of students in late August from its healthcare systems engineering internship program, a STEM area of critical national need. The year-round program provides non-Northeastern students from across the U.S. with hands-on experience working on a variety of research problems, participating in clinician-engineer research teams, weekly in-service and education programs, mentoring and reflection activities, and continued involvement, mentoring, and dissemination post-summer. Participants included engineering, biomedical, nursing, public health, health management, mathematics, and statistics students from 21 states and 4 countries, working with health systems in Boston, Seattle, Atlanta, Maine, and elsewhere through the Institute's eleven NIH, AHRQ, CMS, and NSF centers and grants.

The value of applying systems engineering in healthcare has been advocated by the Institute of Medicine, National Academy of Engineers, NIH, and President's Council of Advisors on Science and Technology, all also highlighting the need for a larger experientially trained workforce. "Our internship program responds to this need while also accomplishing the Institute's mission to integrate research, education, and application for impact and knowledge discovery, scaling our work at NU across the county," said HSyE director Dr. James Benneyan. Examples of intern projects include earlier detection of autistic children, IT tools to improve patient safety, use of mother's milk in low birth weight babies, detection of hospital infection outbreaks, patient flow in emergency departments and surgery, practice variation reduction, predictive and adaptive models for patient flow and hospital staffing, human factors analysis of error causality, cancer survivor care plans, and adoption of results analytics.

Students learned how to apply a wide range of simple-to-advanced methods to these problems, including front-line quality improvement, user-centered design, human factors engineering, reliability science, predictive analytics, statistical quality control, computer simulation, queuing, behavioral economics, cooperative game theory, mathematical optimization, genetic algorithms, machine learning, control theory, system dynamics, and agent-based models. The internship provides "exposure to important problems working with some of the best U.S. hospitals. There is no other program like this anywhere in the country, providing that type of hands-on experience," said 2014 intern Jackie Falk, from SUNY Binghamton and now Patient Logistics Analyst at North Shore University Hospital. To-date 197 healthcare engineers have participated in HSyE internship programs and subsequently pursued graduate school or been hired into organizations.

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