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ONGOING RECOVERY EFFORTS TAKE TOLL ON HURRICANE SURVIVORS

***New Report Details the Lingering Effects of Superstorm Sandy –
Initial Findings of the Million-Resident Sandy Child and Family Health Study***

New Brunswick, NJ -- Superstorm Sandy continues to affect the lives of tens of thousands of New Jersey residents, in the form of unfinished repairs, disputed claims, and recurrent mold. These after-effects still linger for Sandy-impacted residents, and are associated with increased odds of residents experiencing mental health distress, post-traumatic stress disorder (PTSD), and depression.

According to the Sandy Child and Family Health Study, a major representative population study of 1 million New Jersey residents living in Sandy's path, over 100,000 New Jersey residents experienced significant structural damage to their primary homes from Superstorm Sandy. Based on findings released from this study, which was conducted by Rutgers University and New York University (NYU), in collaboration with Columbia University and Colorado State University, among those New Jersey residents whose homes suffered such damage, 27% are experiencing moderate or severe mental health distress and 14% report the signs and symptoms of PTSD even two and a half years after the storm.

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“Recovery, or stalled recovery, is not as dramatic as the storm and the initial response,” noted Dr. David Abramson, the study’s principal investigator. “But it is what exacts the greatest toll both financially and psychologically. Sandy may have occurred nearly three years ago, but it has had an enduring impact on those individuals and communities exposed to it,” he said.

Among the study’s objectives were to help the state identify the health and well-being of residents exposed to the storm and to begin to identify unmet needs.

“The state always knew recovery from Superstorm Sandy would take years,” New Jersey Health Commissioner Mary O’Dowd said. “In the aftermath of Sandy, the Department of Health recognized the need for research and so we funded this study so we could hear the concerns of recovering families and modify our ongoing Sandy programs to better address the needs of those who are still coping with recovery issues. For example, the Department recently extended programs for behavioral health assistance and lead screening for another year.”

“It was striking to us and to our field team of over 30 interviewers how Sandy still dominated the lives of so many New Jersey residents,” added Rutgers University’s Dr. Donna Van Alst, the study’s co-Principal Investigator, “even two and a half years after the event. People across the economic spectrum were affected.” Other findings from the study revealed that:

- Children in hurricane-damaged homes are at higher risk for mental health problems than children’s homes who suffered no damage. Children living in homes with minor damage were over 5 times as likely to feel sad or depressed as were children in homes that were not damaged, over 8 times as likely to have difficulty sleeping, and 5 times as likely to feel nervous or afraid. Children whose homes suffered major damage were affected as well, although, interestingly, those in homes with minor damage demonstrated the most substantial mental health effects;
- The health effects associated with catastrophic damage to one’s home are similar to those felt by people living in deep poverty. A number of the residents whose homes suffered major damage said that they often did not have enough money for rent or mortgage, to pay for utilities, to pay for transportation, or to pay for all the food that they or their family needed;
- Mold was significantly associated with both asthma and with mental health distress;
- Despite the efforts of public officials to urge residents to move out of harm’s way prior to the storm, only one-third of the residents living in mandatory evacuation zones heeded the calls to evacuate their homes.

The findings from this study are based on face-to-face surveys with 1,000 randomly sampled New Jersey residents living in the state’s nine most-affected counties. The research team from the four universities deployed a team of nearly three-dozen community-based interviewers to conduct the surveys. In addition, the team used flood storm surge data and housing damage data to identify a “disaster footprint,” the geographic area within New Jersey that was exposed to Sandy.

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The 1,000-person sample was drawn so as to be representative of the 1,047,000 residents living in this Disaster Footprint. The footprint extends from Cape May in the south of the state to several miles north of the George Washington Bridge, and stretches from the shoreline to over 20 miles inland.

The study is modeled upon a similar five-year study conducted by Abramson and Columbia University's National Center for Disaster Preparedness in Louisiana and Mississippi after Hurricane Katrina, the Gulf Coast Child and Family Health Study. The Sandy study was funded by the New Jersey Department of Health using Social Services Block Grant (SSBG) – Sandy Supplemental funds. Department of Health Commissioner O'Dowd recognized this study as an opportunity to gain valuable, unprecedented insight on the public health impact of the storm on New Jersey residents and to guide the Department's recovery activities.

The first two Briefing Reports were released on July 29, 2015, "The Hurricane Sandy PLACE Report: Evacuation Decisions, Housing Issues, and Sense of Community," and "The Hurricane Sandy PERSON Report: Exposure, health, Economic Burden, and Social Well-Being" (www.scafh.org). Additional Briefing Reports that focus on persistent and unmet needs, and the status of residents' disaster recovery, will be released in the next several months.

"The similarities between Hurricanes Katrina and Sandy are quite disturbing," noted NYU's Abramson. "Many adults and children are still experiencing emotional and psychological effects, so long after the storm passed. In a significant number of cases housing damage is at the heart of the problem, and it's very concerning to hear that so many of the federally-financed programs have ended even though the needs still clearly persist."

Experts are further concerned that the results of this study reflect a pattern that is seen after many large-scale disasters here in the U.S and internationally. "By far, one of the least understood aspects of disaster management is how to make recovery from catastrophic events efficient and rapid, so that people can return to a state of normalcy as quickly as possible", said Irwin Redlener, MD, Director of the National Center for Disaster Preparedness at Columbia University's Earth Institute. "This prolonged uncertainty and persistent trauma are very difficult for families and especially traumatic for children", added Dr. Redlener, who is president of the Children's Health Fund and a professor at the Mailman School of Public Health.

The study is a partnership of four academic centers – the Program on Population Impact, Recovery, and Resiliency (PiR²) at NYU's College of Global Public Health, led by Abramson; the Institute for Families, at Rutgers' School of Social Work, represented by Donna Van Alst, Patricia Findley and Sandra Moroso; Columbia University's National Center for Disaster Preparedness, represented by Irwin Redlener, Jaishree Beedasy, and Jonathan Sury; and Colorado State University's Center for Disaster and Risk Analysis, led by Lori Peek.

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S-CAFH study team, affiliations and titles, contact information, and subject matter expertise

1. **David Abramson**, PhD, MPH, is Clinical Associate Professor of Public Health at NYU's College of Global Public Health and the founding director of NYU's Program on Population Impact, Recovery, and Resiliency (PiR²). He is the former deputy director of Columbia University's National Center for Disaster Preparedness and is presently leading studies examining the impacts of the Deepwater Horizon oil spill on children's health in the Gulf Coast; a study on the long-term effects on populations exposed to Hurricane Katrina; and is the co-founder and co-director of the SHOREline youth development project along with Colorado State University's Lori Peek. Dr. Abramson is the lead investigator of the Sandy Child and Family Health Study, and can speak about the study's objectives, methods, and findings, and provide context for how those experiences of populations exposed to Superstorm Sandy compares to other disasters. He can also speak about the policy implications of the study's findings. Email: david.abramson@nyu.edu.
2. **Donna Van Alst**, PhD, is an Assistant Research Professor at the Institute for Families at the Rutgers Graduate School of Social Work. She is a co-investigator on the Sandy Child and Family Health Study, and can speak on impacts of Sandy on New Jersey residents; details of study methods and field work; insights on developing a multi-university research partnership; and human services system adaptations to respond to Superstorm Sandy. Email: vanalst@ssw.rutgers.edu.
3. **Patricia Findley**, DrPH, LCSW, is an Associate Professor at the Rutgers Graduate School of Social Work. She has an expertise in the impact of comorbid mental and physical health issues and how they impact overall well-being. She has conducted studies to address the behavioral health response by the State of New Jersey to Hurricane Sandy, but also has studied the impact of man-made and weather-related trauma in Israel on vulnerable populations to promote disaster preparedness. She is a co-investigator on the Sandy Child and Family Health Study, and can speak on the impact of environmental conditions (i.e. mold) on physical and mental health with an emphasis on vulnerable populations including those with disabilities and the elderly. Email: pfindley@ssw.rutgers.edu
4. **Lori Peek**, PhD, is an Associate Professor of Sociology and Co-Director of the Center for Disaster and Risk Analysis at Colorado State University. She is also a Research Associate Professor at NYU's College of Global Public Health, Program on Population Impact, Recovery, and Resiliency (PiR²). Dr. Peek has conducted numerous studies on children, low-income families, and other vulnerable populations in disaster. She is a co-investigator of the Sandy Child and Family Health Study, and can speak to the impacts of Sandy on marginalized populations; can offer context for how Sandy compares to other disasters such as 2005 Hurricane Katrina, 2010 BP Oil Spill, 2011 Joplin Tornado; and finally, can address what children and families need to facilitate a successful and speedy recovery. Email: lori.peek@colostate.edu.
5. **Irwin Redlener**, MD is director of the National Center for Disaster Preparedness at the Earth Institute of Columbia University and professor of Health Policy and Management at The Mailman School of Public Health. He, a pediatrician, is also president and co-founder of the Children's Health Fund which has been deeply involved in responding to many large-scale disasters including Hurricanes Katrina and Sandy, as well as the Deepwater Horizon Oil Spill, the World Trade Center attacks in 2001 and others. Dr. Redlener can speak to the challenges of

implementing effective major disaster recovery, governmental barriers to recovery and long-term consequences of disasters on children. Email: ir2110@cumc.columbia.edu.

6. **Jonathan Sury**, MPH, is a Senior Research Coordinator at the National Center for Disaster Preparedness at the Earth Institute, Columbia University (NCDP). Mr. Sury has supported field-based research operations after Hurricane Katrina and Gustav, the Deepwater Horizon Oil Spill, and most recently Superstorm Sandy. He is available to discuss the use of publically available data and how those various data, which include storm surge, housing damage, and FEMA assistance requests, were applied to identify a “disaster footprint” and achieve a representative population sample. As the technology lead, he can also discuss how this study leveraged innovative mobile technology systems for data collection and field operations. Email: jjs2154@cumc.columbia.edu.

NYU College of Global Public Health:

At the College of Global Public Health (CGPH) at New York University (NYU), we are preparing the next generation of public health pioneers with the critical thinking skills, acumen and entrepreneurial approaches necessary to reinvent the public health paradigm. Devoted to employing a nontraditional, inter-disciplinary model, CGPH aims to improve health worldwide through a unique blend of global public health studies, research and practice. CGPH is located in the heart of New York City and extends to NYU’s global network on six continents. Innovation is at the core of our ambitious approach, thinking and teaching. <http://publichealth.nyu.edu/>.

Rutgers School of Social Work and Institute for Families:

Rutgers School of Social Work provides an extraordinary combination of nationally recognized faculty and outstanding field education opportunities. Founded in 1766 and located in the heart of the New Jersey-New York-Pennsylvania region, Rutgers University has always offered students a top-notch, affordable education. As a part of Rutgers since 1954, the School of Social Work carries on that tradition, turning passionate, committed students into leaders who serve society in policy, academic, clinical, and corporate settings. The mission of the Institute for Families (IFF), at the Rutgers School of Social Work, is to support and strengthen individuals, families, and communities by building the capacity of human service professionals and organizations. This is accomplished by providing a focal point for training, research and service activities concerned with strengthening families. <http://socialwork.rutgers.edu/InstituteForFamilies>.

Columbia University’s National Center for Disaster Preparedness:

The National Center for Disaster Preparedness at the Earth Institute works to understand and improve the nation’s capacity to prepare for, respond to and recover from disasters. NCDP focuses on the readiness of governmental and non-governmental systems; the complexities of population recovery; the power of community engagement; and the risks of human vulnerability, with a particular focus on children. www.ncdp.columbia.edu.

Colorado State University’s Center for Disaster and Risk Analysis:

At the Center for Disaster and Risk Analysis (CDRA) at Colorado State University, we engage in interdisciplinary research, education, and outreach activities for the primary purpose of reducing human vulnerability to disasters and increasing individual and community capacity to prepare for and recover from hazard events. <http://disaster.colostate.edu/>.