



Health and Human Services

Encompasses the financial impact of damage to healthcare facilities, as well as cost to address additional public health needs caused by Hurricane Florence.

1. Summary

The following is documentation of the methodology used to estimate health and human services needs due to Hurricane Florence.

Preliminary estimates are based on information provided to us by the North Carolina Department of Health and Human Services (DHHS), and external health and human services stakeholders. Total impact is estimated at \$232.5 million, at least \$149.3 million of which we expect to be covered by federal and private sources of funding, resulting in an unmet health and human services impact of \$83.2 million.

In summary, the total impact estimate is comprised of \$90.6 million due to hospitals and nursing homes, \$8.5 million due to public health, \$29.0 million due to social services, and \$104.4 million due to other health needs.

Preliminary Damage and Needs Estimate (Millions)						
Category	Direct	Indirect/ Induced	Total Impact	Federal Funding	Private Funding	Unmet Impact
Health Care Facilities*	\$50.5	\$40.1	\$90.6	\$0.0	\$72.5	\$18.1
Public Health	\$8.5	\$0.0	\$8.5	\$5.6	\$0.0	\$2.9
Social Services	\$29.0	\$0.0	\$29.0	\$18.4	\$0.0	\$10.6
Health Needs	\$104.4	\$0.0	\$104.4	\$52.8	\$0.0	\$51.6
Subtotal	\$192.4	\$40.1	\$232.5	\$76.8	\$72.5	\$83.2
Resiliency efforts	\$0.0	\$0.0	\$0	\$0.0	\$0.0	\$0
Total	\$192.4	\$0.0	\$232.5	\$76.8	\$72.5	\$83.2

**Note: Figure only includes estimates to private hospitals, and doesn't include health care safety net sites in impacted counties (rural health centers, free and charitable clinics, small rural hospitals, critical access hospitals, and school-based health centers).*

2. Scope

Structures in scope for health and human services estimates include:

- Private hospitals, nursing homes and health care safety net facilities
- Public health (including vector surveillance & mold mitigation)
- Social services (including foster care & emergency nutrition assistance)

- Health needs (including assistive technology, mental health & substance use disorder services, I/DD services)

3. Demographics

The majority of damage from Hurricane Florence was to an especially vulnerable part of North Carolina. Much of the Eastern and Southern counties impacted by the storm had not yet recovered from the severe damage of Hurricane Mathew in 2016.

More than a quarter of the state’s population lives in the 28 counties the Federal Emergency Management Agency (FEMA) declared eligible for individual assistance, and many of those people lack the capacity to respond to such a devastating event. Approximately one in five residents in the region live in poverty, and a little more than 30% live below 150% of the poverty line. Almost 30% of the state’s Medicaid population, and one quarter of its Children’s Health Insurance Program (CHIP) recipients, live in the area. Under normal circumstances, these residents often rely on a combination of government-subsidized health and human services for food, medical care and housing assistance. In the wake of the hurricane, they’ve turned to emergency assistance programs such as the Disaster Supplemental Nutrition Assistance Program (D-SNAP), and temporary housing shelters until they can return to their homes.

Estimates were calculated as specifically as possible based on historical data and the demographics of affected counties. OSBM continues to work with NC hospitals and the North Carolina Hospital Association (NCHA) to verify damage estimates. Pre-K and child care facilities were also impacted by the hurricane; however, the extent of the damage is not yet known. The limited availability of current data makes it difficult to quantify the effects of trauma experienced by individuals and families impacted by the storm. In addition, the nature of DHHS services will require a comprehensive and thoughtful long-range approach in responding to this disaster.

Demographics Snapshot of Disaster-Impacted Counties	
Medicaid	<ul style="list-style-type: none"> • 700,000 people enrolled in Medicaid • 30,000 children enrolled in CHIP
Uninsured	<ul style="list-style-type: none"> • 13.1% uninsured (277,000) • Almost 45% of uninsured fall below 138% of poverty line
Disabled	<ul style="list-style-type: none"> • 19% over the age of 18 (363,000)
Public Assistance	<ul style="list-style-type: none"> • 17% of households receive FNS benefits (174,000)
Elderly	<ul style="list-style-type: none"> • 16% over age of 65 (420,000) • 27% of households have at least one person over the age of 65 (270,000)

4. Methodology

Private Hospitals, Nursing Homes & Health Care Safety Net

Damage at hospitals was estimated by benchmarking the physical damage and economic loss of North Carolina's hospital system against the observed financial costs of Hurricane Sandy. Damage estimates were pulled from three New York Hospitals in Sandy's path (Bellevue, Coney Island, Long Beach Medical Center). Using this information, an average cost of damage per bed was estimated. This figure was then multiplied by the total number of beds in North Carolina hospitals located in the Hurricane Florence federal disaster zone.

Finally, two adjustments were made. First, the damage at North Carolina Hospitals was scaled down according to the hospital damage severity classifications established after Hurricane Sandy. Second, the facility damage cost was adjusted down 56%, which is based on comparing the average construction cost per square foot in North Carolina vs. New York City (see Assumptions section for more detail). Based on this modeling, we estimate eastern North Carolina hospitals will face \$42.7 million in facility costs and \$30.8 million in economic loss.

The facility and economic costs of nursing homes were modeled using the same methodology. Damage assessments from ten New York nursing homes were used to identify a facility and economic cost benchmark per bed. This benchmark was then applied to the 99 nursing homes located in disaster-declared North Carolina counties, using the same adjustment criteria. Based on this modeling, we estimate eastern North Carolina nursing homes will face \$7.8 million in facility costs and \$9.2 million in economic costs.

Public Health

- *Mosquito Abatement* - Based on the population and acreage of the disaster-impacted counties, the state has committed \$7.5 million in assistance to counties to address increases in mosquito population and size, caused by flooding, which pose an immediate public health risk to their communities.
- *Funding for Mold Remediation* - HHS requested an estimated \$1M, which includes 6 new FTEs, to bolster counties' response to mold calls from impacted residents, as well as to assist with home clean up and mold remediation strategies. Mold growth due to flooding is a long-term issue and costs will be incurred for as long as two years. Given that current North Carolina Emergency Management (NCEM) models indicate 73,000 homes were impacted by flooding, this is a conservative needs estimate averaging to only \$13.69 per impacted home.

Adult Social Services

DHHS expects an increase in the number of Adult Protective Services and Guardianship cases. The department estimated the cost of temporary staff to support each local agency's response to the increase.

The Home and Community Care Block Grant (HCCBG) provides a mix of services that counties administer to meet the needs of older adults. DHHS began providing extra supports, such as home-delivered meals, before the storm began and expects these services to be needed for as long as six months.

Child Services

A new child welfare services program would provide assistance to foster care families, foster children, and families with an open child protective services (CPS) case. DHHS estimated the number of children and families to be served by applying the percentage of households seeking individual assistance from FEMA to the number of foster care families, the number of foster care children, and the number of families with an CPS case in the impacted counties. The assistance provided would range for \$150-\$1000 per child/household. Federal IV-E funding may be able to cover 25% of these costs associated with foster care families.

Following Hurricane Sandy, New Jersey allotted \$237,000 to hire former CPS workers to help cover increasing reports in 10 different counties. With three times as many affected counties, an estimated \$800,000 would be needed to implement this program in North Carolina, which also includes an adjustment for inflation.

While the total number of damaged and/or closed NC Pre-K classrooms is not yet known, we do know that many Pre-K classrooms experienced some sort of damage from Hurricane Florence. Therefore, \$1 million in assistance is being provided as grant program.

Food and Nutrition Assistance

- *D-SNAP* - DHHS reviewed county data for D-SNAP from Hurricane Matthew and extrapolated from it based on the increased severity of Hurricane Florence. DHHS also used feedback from county Departments of Social Services (DSS) operations to assist in arriving at a total estimate \$10.2 million. State and local governments must provide 50% of these costs. The State has already authorized overtime for DSS staff to respond to increased demand.
- *School Nutrition Services* – All students in disaster-declared areas are eligible to participate in free federal school breakfast and lunch program through the end of October. The Department of Public Instruction (DPI) estimated the number of additional students eligible to receive free meals in the impacted school districts, charter schools, and federal schools, and the maximum potential federal payment per meal per day. The projected cost for all eligible students to receive both breakfast and lunch from September 17 through October 31, 2018 ranges from \$6.0 million to \$13.1 million, depending on uptake rate.

Health Needs

- *Emergency Prescription Assistance Program (EPAP)* - Eligible, uninsured residents can receive a free 30-day supply of their medications. Based on the population of uninsured in the impacted counties, anticipated take-up rate modeled after New York/New Jersey following Hurricane Sandy, and factoring increased cost of claim growth, the impact to North Carolina if the EPAP program is activated for a full year could be up to \$1.0 million.
- *Durable Medical Equipment (DME) and Assistive Technology (AT) Replacement* - Based on the disabled population of the impacted counties, the

costs of providing short-term DME/AT solutions for evacuees displaced by the storm, and repairing/replacing damaged or destroyed DME/AT during Hurricane Florence. Additionally, staff in impacted counties will be needed to assist with the anticipated demands of expeditiously addressing accessibility and safety needs, increase stability, and replace equipment and devices in order to restore client's ability to function independently.

- *Intellectual and/or Developmentally Disabled Displacement Recovery* - The estimated impact to individuals with Intellectual and/or Developmental Disabilities (I/DD) who may need an institutional level of care, but currently have a living situation in the community due to supports provided by existing I/DD service providers and LME/MCOs was modeled after the disabled population in the impacted counties.
- *Mental Health Services* - Projected mental health and substance use disorder services costs are experienced by New Jersey's Department of Health and Human Services following Hurricane Sandy indicated an additional need of \$8.1 million for increased clinical behavioral health services and a mental health public awareness campaign targeted at individuals impacted by Sandy. Following Sandy, there were 16,024 crisis counseling contacts, of which 1,424 required referrals for longer-term professional mental health treatment and an additional 262 received referrals for professional behavioral or medical treatment for substance abuse problems.
 - Within 30 days post-Florence, costs for mental health services responding to trauma; community outreach, screening and training; school screenings and training; and patient transportation for appointments with mental health providers in the three catchment areas with impacted counties.
 - Costs estimated for mental health services to Medicaid beneficiaries likely to surge starting roughly 2-3 months following disaster and lasting up to 8 months. Trillium experienced additional mental health services to Medicaid beneficiaries totaling \$10.2 million in additional costs following Hurricane Matthew in 2016.
 - Approximately 3,200-3,750 uninsured adults will need outpatient therapy, medication management, intensive in-home services, community support team services, assertive community treatment team services, and/or substance abuse intensive outpatient services.

This impact estimate reflects the anticipated cost of services that will be needed in impacted areas. It does not attempt to quantify the effects of trauma experienced by individuals and families impacted by the storm. Peer-reviewed literature detailing the mental health impacts of Hurricanes Katrina and Rita indicate that an evidence-based mental health response to storm trauma is feasible, but requires targeted resources, increased provider capacity, and advanced planning. The study indicated that full implementation would cost \$1,133 per capita. Put into the North Carolina context, such an approach would cost more than \$12.5 billion and yield 94.8% to 96.1% recovery within 30 months; however, it would exceed available provider capacity. Partial implementation would lower costs and recovery proportionately.

5. Assumptions

- 56% repair cost adjustment: based on comparing average construction cost per square foot in New York City against average cost in Wilmington, North Carolina (e.g. what would cost \$1 in New York City would be \$0.56 in Wilmington). This comparison was made using data from the RSMMeans Location Factors.
- Extrapolating hospital costs across all hospitals utilizes the same methodology as that of Hurricane Sandy. Hospitals were placed in one of 3 impact categories: 1) no physical damage, but surge in patients (hence costs) from evacuated facilities 2) Temporary damage, significant surge in patients, and 3) facility closed due to damage and evacuated. The analysis extrapolated damage estimates from category 3 hospitals to estimate damage in facilities in categories 1 and 2. Our analysis categorizes all hospitals in disaster areas as a “Category 1.5.” To this end, we applied a 95% reduction in the damage per bed figures observed in Hurricane Sandy.
- We assume all hospitals and nursing homes have comprehensive private insurance coverage that will compensate them for 80% of their facility costs.
- Assumes CPS and foster care families and children will apply for assistance at the same rate as households in the impacted areas applied for FEMA Individual Assistance.
- Assumes an annual 2% inflation in child welfare social worker costs.
- EPAP methodology assumes that North Carolina has a 2% take up rate, or double the impact experienced in New Jersey following superstorm Sandy, and a higher cost of claims grown by the Consumer Price Index medical inflation \$130.

6. Primary data sources

- DEM
- DHHS
- LME/MCO Executive Staff
- Hospital Executive Staff

7. Potential Sources of Funding for Unmet Impact

Federal:

- HHS offers assistance in the following areas:
 - 67.3% of Medicaid eligible costs in FY 2018-19 (\$40.4 million) - this blended rate will change in the new state fiscal year.
 - 75% of the EPAP costs (\$3 million)
 - 25% of the costs associated with child welfare (\$0.2 million)

- USDA covers 50% of the costs associated with D-SNAP (\$5.1 million). In addition, USDA provides 100% of the funding for the school nutrition program (\$13.1 million).
- FEMA will reimburse the State up to 75% of the costs associated with certain health care services (\$9.4 million) and mosquito abatement (\$5.6 million).

Private:

- For private hospitals and nursing homes, \$76 million would come from those entities' insurance companies.

8. State Funding Recommendation for Unmet Impact

Rebuilding – \$69 million

Health Care Safety Net - \$5 million

Provides funds to the NC Department of Health and Human Services, Division of Central Administration to administer grants to hospitals, nursing homes, and health care safety net sites (rural health centers, free and charitable clinics, small rural hospitals, critical access hospitals, and school-based health centers) in the 28 affected counties.

Mosquito Abatement - \$2 million

Provides funding to local agencies to conduct integrated mosquito management. This state funding will be used to leverage federal funding and provide a total of \$7.5 million to impacted counties.

Mold Remediation - \$1 million

Bolsters counties' response to mold calls from impacted residents, as well as to assist with home clean up and mold remediation strategies. Mold growth due to flooding is a long-term issue and costs will be incurred for up to two years.

Child Welfare Services - \$2 million

Reimburses counties for financial assistance provided to foster children and foster care families, as well as families with open CPS cases, who have been impacted by Hurricane Florence. This assistance would be used to provide stability in the home by restoring losses to personal property.

NC Pre-K Repairs - \$1 million

Establishes a grant program where Pre-K providers can apply for assistance for immediate repairs that would aid these programs in remaining open or returning quickly to operations.

D-SNAP Match Funding - \$5 million

Provides food to families and individuals that meet certain eligibility requirements, including suffering a loss due to Hurricane Florence, and who are

not currently receiving Food and Nutrition Services (FNS) benefits. This state appropriation leverages federal funding for a total of \$10.2 million in food benefits.

Durable Medical Equipment & Assistive Technology - \$1 million

Provides funding for staff qualified to assist individuals with replacing lost devices and requalifying individuals needing DME and/or AT in order to live independently and remain integrated in the community.

Individuals with Intellectual/Development Disabilities Displacement Recovery - \$2 million

Increases funding for the I/DD population to ensure that individuals remain integrated in the community and to assist I/DD providers to regain capacity to serve I/DD population in impacted counties.

Adult Protective Services - \$2 million

Provides assistance to counties for temporary staff support to respond to an expected increase in guardianship and APS cases following the disaster.

Area Agencies on Aging (AAA) - \$0.2 million

Provides home-delivered meals, transportation, and damage repairs to low-income elderly residents in impacted areas.

Child Welfare Social Workers - \$1 million

Provides a flexible pool of temporary or contract social workers to work with counties in the short term as they experience a surge in child welfare reports. Research indicates that reports of domestic violence, child abuse, and neglect increase following a disaster.

Emergency Prescription Assistance Program - \$1 million

Activates the EPAP program, allowing enrolled pharmacies to process claims for prescription medications, medical supplies, vaccinations and some medical equipment for uninsured residents of a disaster area.

Mental Health Services for the Uninsured - \$27 million

Provides funding to support emergency mental health needs as well as provide ongoing mental health support to the uninsured population impacted by Hurricane Florence.

Mental Health Services for Medicaid Beneficiaries - \$20 million

Provides supplemental funds to address the emergency and ongoing behavioral health needs of Medicaid beneficiaries for up to eight months post disaster declaration.

Substance Use Treatment Programs - \$3 million

Provides funding for supplies, take-home medication, overtime, building damage repair, and other costs of treatment to 25 opioid treatment programs to assist individuals with opioid addiction while recovering from Hurricane Florence.