

PROTECTING NYC

PREPARING FOR A SAFER FUTURE



CAPABILITIES · IMPACTS · CRITICAL NEEDS
NYC Public Health and Healthcare Preparedness and Response REPORT

NYCTM
Health



New York City is uniquely vulnerable to threats of all kinds. Sustained dedicated funding will keep us ready to save lives.

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THE HEALTH DEPARTMENT'S ROLE IN EMERGENCY PREPAREDNESS



Protecting People and Supporting Communities When Disaster Strikes

A steam pipe explosion, a coastal storm, an anthrax attack, a flu pandemic—whatever the emergency, the New York City Health Department is charged with critical preparedness and response roles, with the primary goal of protecting the public's health.

Since September 11, 2001, it has become increasingly clear that the public health and healthcare systems play a vital role in any emergency, whether it is naturally occurring or resulting from a deliberate act.

Since that time, the New York City Health Department has built a strong foundation to respond to emergencies, made possible in large part by funding from the Public Health Emergency Preparedness (PHEP) and Hospital Preparedness Program (HPP) Cooperative Agreements provided by the Centers for Disease Control and Prevention (CDC) and the Assistant Secretary for Preparedness and Response (ASPR), respectively.

Using these federal funds, the Health Department has worked closely with local government agencies, hospitals, healthcare providers, community organizations and leaders, state and regional health departments and other partners to prepare for the unexpected, including pandemic influenza, terrorist attacks, natural disasters and any other emergency that could impact the health of New Yorkers. More specifically, the Health Department and the healthcare system have used these funds to invest in staff; plan development, training and exercise programs; and purchase supplies, so that skilled and experienced personnel are equipped to respond to a broad range of emergencies.

Immense size, density, diversity, economic power, tourism and New York City's position as a hub for national and

international transit, as well as political and cultural influence, make the city great. However, these factors also make New York City uniquely vulnerable to threats of all kinds. The Health Department takes this responsibility seriously and plans for the worst-case scenarios.

What does this all mean for the 8.4 million people who live in New York City and the millions who work in and visit the city every day? How do these investments impact individuals' lives? Whether it be the protection of frail elderly residents of a beachside nursing home evacuated during Hurricane Sandy or the diagnosis and care of an Ebola case, these stories set forth concrete examples of how federal preparedness funds provide critical and necessary protection of the public.

Each story focuses on a moment and a place where the Health Department's planning and response prevented illness, ensured well-being and saved lives during the worst of times.

The critical role of public health is also a key contributor to overall national security. Funding must be maintained to ensure that the well-being of the public during times of the unthinkable is not compromised. We may not know what is coming next, but we do know that the institutions and people responsible for safeguarding public health and healthcare must be ready for whatever emergencies come our way.

ON THE FRONT LINES: READYING THE HEALTHCARE SYSTEM

Hospitals must be prepared for any emergency—including their own evacuation.



The only light emanated from flashlights held aloft by medical students at the staircase landings. A cluster of a half-dozen nurses, doctors and aides, each carrying a pump or monitor, tube or fluid bag, descended. At their center, supported by all that medical apparatus—and a nurse’s arms—lay one tiny patient of the Neonatal Intensive Care Unit (NICU) of NYU Langone Medical Center (NYU Langone), located beside the East River.

When Hurricane Sandy made landfall, the ninth-floor NICU was warm and dry. Then the river overflowed its banks, infiltrating the safety circuits of the hospital’s fuel pumps, which shut down the generators. The NICU had to evacuate.

Since 2008, the New York City Pediatric Disaster Coalition (PDC), a critical New York City Health Department-funded partner, worked closely with hospitals to plan and train for the emergency evacuation and surge capacity of NICUs.

The New York City Health Department, PDC and NYC hospitals, including NYU Langone, had made significant improvements to evacuation plans after Hurricane Irene in 2011. Lessons learned during Hurricane Irene informed planning to further readiness efforts for future emergencies such as Hurricane Sandy.

With Hurricane Sandy at its door, NYU Langone arranged with other hospitals to receive its patients. All patients were safely transported to 14 area hospitals. It transferred out stable

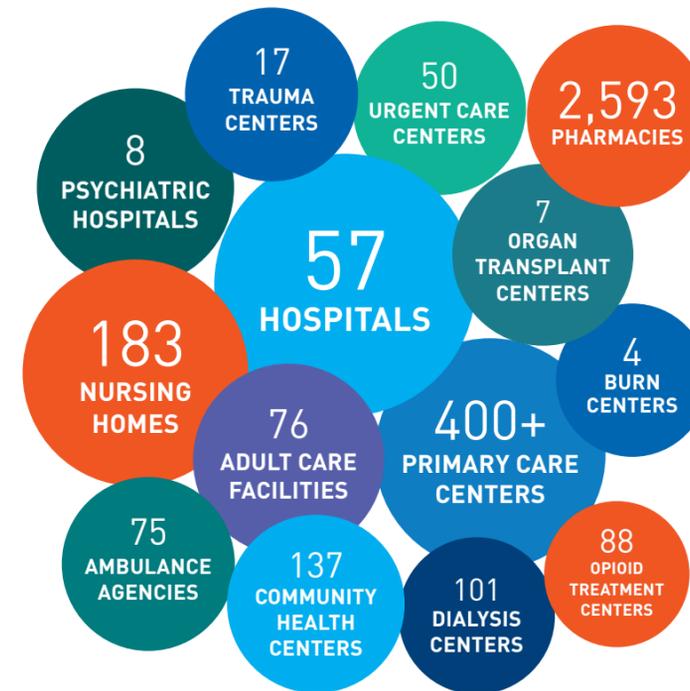
patients, instituted patient-tracking and updated medical records. Life-sustaining equipment was battery-operated.

Without power, records and tracking data were locked inside computers; staff handwrote notes off the forms they used to communicate patient information from shift to shift and drew up a paper patient tracker. With elevators down, the special beds used to move infants were of little use. The infants would have to be carried down nine flights of stairs.

Still, thanks to post-Irene planning and training by Health Department-supported partners like the PDC and other hospitals like NYU Langone, extra staff were waiting in nearby dorms, prepped for action. The healthcare evacuation center in Brooklyn—where City and State employees coordinated actions—sent frequent updates about facilities that were full or out of commission. That saved time for doctors calling around seeking beds. Unlike Irene, when a shortage of vehicles slowed transport, this time plenty of ambulances were ready at the curb.

NYU Langone staff informed parents of their children’s whereabouts during the evacuation. Later that night, parents could touch their babies, asleep in the warm, beeping havens of NICUs throughout the city.

The Health Department works with healthcare facilities citywide to strengthen emergency preparedness, including developing emergency plans.



These numbers are subject to change.

Impact

- The Health Department utilizes Hospital Preparedness Program (HPP) funds to contract with 55 acute care hospitals in NYC. Hospitals are required to complete deliverables that further their readiness. NYU Langone has received HPP funds since 2002, and this funding has contributed to its hurricane response readiness.
- The Health Department has funded the PDC since 2008 to ensure effective use of critical assets before and after a large-scale disaster affecting children. PDC has worked with NYC NICUs and pediatric ICUs to develop evacuation plans. NYU Langone relied on its NICU evacuation plan to guide its Hurricane Sandy response.
- Supported by annual preparedness funding, the Health Department’s evaluation staff conducts after-action reviews to evaluate results and identify opportunities to improve response operations. Lessons learned from Hurricane Irene directly informed the city’s Hurricane Sandy response.

Critical Need

- Increased and sustained funds to support the healthcare system in preparing for a wide range of emergencies, including emerging infectious diseases, hurricanes or a mass-casualty incident.
- Expanded planning to other healthcare sectors to strengthen other parts of NYC’s complex healthcare system.

WATCHING OVER THE VULNERABLE

A system was rapidly deployed to keep track of the many long-term care facility residents evacuated during Hurricane Sandy.

Hurricane Sandy was in full fury. One senior staffer had been at the New York City Health Department's Gotham Center headquarters for days, working nonstop. Finally home, he fed the cat and got into bed. Five hours later, the phone rang. His colleague apologized, and then told him to come back to the office.

There were 1,800 nursing home and adult care residents evacuating, some through second-story windows in Coney Island, the staffer, a lead planner, recalled. Some left in boats. There was little time to gather their things, including medical records, medications, or—if they had them—cell phones. With staff sparse, many of these patients—frail, ill or suffering from dementia—would temporarily stay at Special Medical Needs Shelters (SMNSs) throughout NYC, where workers did everything they could to keep them accounted for and safe.

The Health Department response staff had 24 hours to devise a tracking system to clearly identify these people and track their locations so that concerned family members would know where they were staying.

A team of Health Department planners and information technology experts created a centralized system to gather personal data from the facility residents within shelters, keep track of each individual's whereabouts and facilitate

reunification with families and friends. By morning, the Long-Term Care Tracker went live.

The Health Department staff and NYC Medical Reserve Corps volunteers were deployed to the shelters around the clock, where they went from bed to bed repeatedly gleaning and correcting information. The data were sent to the Long-Term Care Tracker database and updated every four hours. Calls from families to 311 were forwarded to the Health Department call center. Within two days, almost every name and its accompanying location was entered into the system.

On the fly, the Health Department built the framework for an instrument that will help locate the vulnerable going forward. Currently under development is the New York City Emergency Patient Search Portal, a web-based tool that can retrieve real-time location information for patients and help families find each other during or after a disaster.

1,800

nursing home and adult care facility residents were evacuated to Special Medical Needs Shelters.



In 24 hours

the Health Department built a system to track these evacuees.



After 19 days of nonstop work, 250 families were reunited.



A Special Medical Needs Shelter in Brooklyn that helped residents from nursing homes and adult care facilities who were evacuated during Sandy. HHS Photo.

Impact

- Preparedness staff developed an electronic survey used in Special Medical Needs Shelters (SMNSs) to track approximately 1,800 residents evacuated from nursing homes and adult care facilities during Hurricane Sandy. The system:
 - Was created in 24 hours.
 - Was the only tracking system available during the storm to connect loved ones with evacuated long-term care residents.
- 101 Health Department staff and 22 Medical Reserve Corps volunteers staffed 7 SMNSs around the clock for 19 days to facilitate family reunification.
- Approximately 250 families were reunited with their loved ones.

Critical Need

- Further develop and implement a centralized system to facilitate family reunification after a disaster. This meets a critical public need and substantially reduces the burden on responder resources and healthcare facilities.

HELPING THE STRANDED AT HOME

A door-to-door canvassing in communities devastated by Hurricane Sandy helped care for those who did not evacuate.



Breezy Point, New York, in November 2012, shortly after Hurricane Sandy. Photo by Pauline Tran.

Hurricane Sandy's massive waves roared over the beaches and boardwalks of the Rockaways and Coney Island. Nine days later a nor'easter beat down on the devastated neighborhoods.

The Mayor ordered evacuation. Most of the residents of single-family houses and smaller apartment buildings were accounted for, either sheltering elsewhere or returning to piece together their battered homes and lives.

But some people were unable or unwilling to leave their homes. Without lights or elevators, residents couldn't get down the stairs of their high-rise buildings, including New York City Housing Authority buildings.

Many important questions remained. How many were stranded 10 or 15 stories up? What shape were they in?

What did they need to survive and stay healthy while the community got back on its feet?

On November 9, the New York City Health Department dispatched key senior staff to command a force of over 500 City, State and federal disaster and emergency medical personnel to go into these high-rise buildings and canvass door to door, checking the residents' wellness, recording—and responding to—their needs.

Simultaneously, the Health Department, in collaboration with other City agencies, assessed whether building services and

conditions were sufficient for habitability, including electricity, heat, water, working elevators, accessible entrances and safe indoor and outdoor environmental conditions.

Some high-rise residents couldn't or wouldn't leave.

The conditions the teams found varied from the uncomfortable to the unlivable. Gas stoves used for heat could result in carbon monoxide poisoning. Indoor plumbing systems were failing.

Under the Health Department's coordination and leadership, City, State and federal staff, including medical professionals and para-professionals, worked together to fill prescriptions

or triage, treat or facilitate evacuation of those in medical distress. Emergency medical technicians carried people down to the street.

As medical tents were set up and dialysis centers, pharmacies and other providers re-established themselves on the ground, the teams could direct the more mobile residents there for assistance. For nonmedical needs like food, water or space heaters, the Health Department connected people with other City or federal agencies. Local pharmacies were soon recruited to fill and, later, deliver prescriptions.

The teams brought more than practical help, pills, water or blankets. They were friendly faces in times of need.



175,000
residences canvassed by Health Department-led teams from November 2012 to January 2013



1,800
New Yorkers received food and water during a visit



1,300
New Yorkers received a follow-up assessment from the Visiting Nurse Service of New York



600
New Yorkers received medical care at their homes

Impact

- From November 9, 2012, to January 20, 2013, the Health Department-led teams canvassed approximately 175,000 residences, gave in-home medical care to 600, evacuated approximately 50 for medical reasons and coordinated with the Visiting Nurse Service of New York to provide follow-up assessments of 1,300 people.
- The Health Department is tasked with preparing for and conducting Post Emergency Canvassing Operations in future emergencies. In order to further develop this capability, the Health Department is creating plans and conducting training and exercises.

Critical Need

- Continue support for communications staff to develop and disseminate clear public messages to encourage evacuation as appropriate.
- Maintain and enhance program support to develop plans, trainings and exercises to ensure a constant state of readiness to support NYC's most vulnerable after a disaster.



OCTOBER 29, 2013: Residents of the Red Hook neighborhood of Brooklyn march through the streets after attending a candlelight vigil to commemorate the one-year anniversary of Hurricane Sandy. [Andrew Burton/Getty Images]

STRENGTHENING COMMUNITY RESILIENCE

With the City’s help, neighbors helped neighbors after Hurricane Sandy.

The New York City Health Department doctor was on her bicycle. She wasn’t commuting to her regular job; she wasn’t out for fun. She was far from home, in the Rockaways, where a nor’easter had just walloped the neighborhoods that Hurricane Sandy had almost drowned nine days earlier, knocking out public transportation and most other basic services.

People needed prescription refills, first aid and dialysis, but primary care offices, dialysis centers and pharmacies were shuttered. Homeowners were worried about mold and toxic cleaning products, but they had no internet in order to find more information about the hazards.

It was a severe test of the community’s resilience. It was also a test of the Health Department’s ability to help communities use their own strengths and connections to get back on their feet after a disaster.

When the winds reach a certain speed, the bridges are closed. In a flood, the public transportation system is turned off. When an emergency occurs, resources are stretched to their limits. Communities need to be prepared to work together, on their own, before additional resources and help arrive.

The Health Department’s community resilience team asks: What are the likely impacts of an emergency? What is the Health Department planning to do and what are other New York City agencies doing? What are the things that the Health Department would need people to do to help their neighbors?

To these ends, the Health Department gave the doctor-on-a-bike a mission: Scope out the well-being of residents and responders; assess the status of available healthcare options; convey accurate, unified public health messages; and call in reports to the Health Department to aid decision-making throughout the day. The doctor was the agency’s boots on the ground, its field agent.

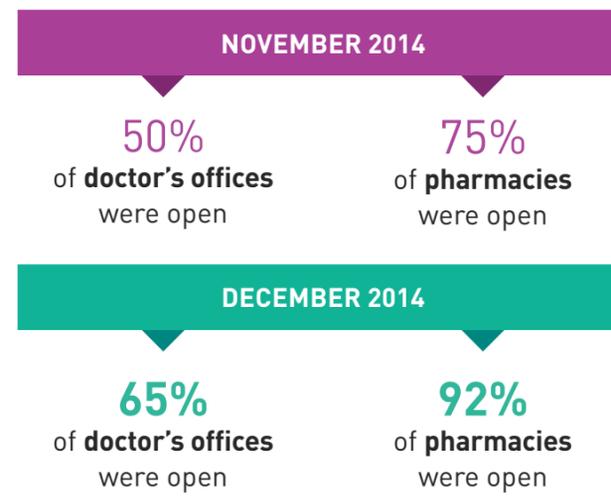
Each day she did “rounds” of mobile medical vans, recovery center tents and volunteer distribution sites, helping them coordinate efforts. There was no list of open primary

care providers or pharmacies. So she cruised the streets, stopping at newly lit storefronts, adding open drugstores or doctor’s offices to lists, which were revised for distribution to responders and the public the next day.

It was clear that primary care centers needed to reopen as quickly as possible. The Primary Care Emergency Preparedness Network (PCEPN), a critical Health Department-funded partner, supported primary care centers by deploying mobile medical vans to provide care to the areas most impacted by the storm. Despite damage to infrastructure, staffing challenges and lack of utilities, many providers reopened as soon as possible, providing vaccinations, medication refills and continuity of care for patients with chronic illness. Primary care center staff also monitored home-based patients and provided services to shelter evacuees, giving much-needed assistance to vulnerable populations.

“The nuance of public health is figuring out the need. Don’t use a high-tech solution where a low-tech one is appropriate,” said the doctor. She realized that, in addition to flyers or lists, this meant showing the government’s human face—for instance, accepting invitations from community groups to speak at meetings. If trust in government and its messages is important, then face-to-face contact has to be part of the solution. And whenever there is an emergency, trust is important. With the Health Department’s help, neighbors were helping neighbors.

After Hurricane Sandy, the Health Department helped most healthcare facilities in the Rockaways reopen within a month to provide critical services.



Surveyed 148 doctor’s offices and 24 pharmacies in the Rockaways

Impact

- Deploying a Health Department leader to the disaster site enabled a better understanding of community needs to guide decision-making and prioritization of response actions.
- PCEPN helped primary care sites become more resilient by outlining the necessary steps to quickly reopen after disasters. One topic was maintaining post-disaster accessibility of Electronic Medical Records so that patient information was not compromised. Protection of vaccines and other pharmaceuticals during power outages was also emphasized.

Critical Need

- To ground its planning in lessons learned and ensure a successful “whole-community” response to an emergency, the Health Department needs to build and sustain relationships with community groups and work with them to best leverage their resources and connections during an emergency. In a city as large as New York, such engagement requires significant resources.
- New Yorkers rely on over 400 primary care providers and roughly 137 community health centers for medical care. Continued support of PCEPN will further efforts to develop effective emergency tools and resources to ensure providers and centers reopen as quickly as possible.
- There are approximately 2,600 pharmacies in NYC that provide critical and trusted services daily. Much work remains to keep them functioning throughout emergencies.

CONTAINING EPIDEMICS

An effective school- and community-based campaign vaccinated the City against H1N1.

Almost all the schoolchildren were calm and uncomplaining, the New York City Health Department Pandemic Influenza Coordinator remembered. Traveling from school to school in the fall of 2009, she was also impressed by the smooth routine—“assembly lines of students” getting nasal sprays or injections of H1N1 flu vaccine.

It was a sharp contrast to the spring before, when New Yorkers terrified of “swine flu” thronged New York City’s emergency rooms—44,678 patients from May 15 to June 15, compared with 4,267 during the same period the year before. On the peak day, 2,500 came. There were five times as many pediatric ER visits as normal. The hospitals surged to manage the three S’s of healthcare planning—staff, stuff and space—in the rush, which experts call a “medical surge.”

The City’s H1N1 response began on a late-April Thursday, when a Queens prep school nurse reported over 100 students complaining of aches, sore throats and fever. Friday afternoon, Health Department investigators took throat and nasal swabs at the school. Saturday, while those same investigators interviewed other students’ families, the NYC Public Health Lab tested the samples. Sunday, the federal Centers for Disease Control and Prevention confirmed H1N1. The Health Department closed the school, and later, dozens more.

summer to prepare for the fall. A vaccine became available. The plan: a massive school-based campaign to administer it. Faculty, school nurses and parents were ready. Across the city, kids lined up for their vaccines.

When more vaccine was produced, New York City made it available to everyone over 4 years old through pharmacies and Points of Dispensing—temporary sites where the Health Department provides medications to the public during a public health emergency.

Rapidly vaccinating kids would not only help prevent them from getting sick, but also protect others in their families and communities who may be more likely to contract this flu strain. Families live in communities. Communities make up a nation. The vaccine and the broad effort to deliver it helped protect a nation.

H1N1 taught New York City some critical lessons.

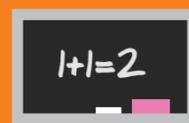
Officials stressed that most cases were mild; they urged handwashing and bed rest. But the frightening media stories had gotten out first and upstaged the reassuring public health messages. In May, when two middle-aged New Yorkers died, every cough rang an alarm.

The fear was worse than the flu. Of those thousands of hospital visits daily, only 40 to 50 people were sick enough to admit. Of the nearly 1 million who fell ill, 47 died. The “case-to-fatality ratio” was equal to that of an ordinary flu season.

H1N1 taught New York City some critical lessons: The response required streamlined decision-making and greater coordination between lines of authority, especially with information and messaging.

Knowing that the flu usually makes an encore appearance a few months later, the Health Department worked through the

3,500 city staff and more than 2,500 volunteers administered H1N1 vaccines citywide.



202,089
VACCINES at
1,232 schools



49,986
VACCINES at
58 community
Points of Dispensing



Impact

- From October 28, 2009, to January 8, 2010, the Health Department visited 1,232 elementary schools and provided 202,089 H1N1 vaccines to students.
- From November through December 2009, the Health Department vaccinated almost 50,000 more people at 58 Points of Dispensing.
- CDC Public Health Emergency Preparedness supported the development of the Health Department’s Incident Command Structure. This structure has been increasingly used to manage routine disease outbreaks.

Critical Need

- Staff funded by preparedness grants are essential to maintain lab and surveillance capability, as well as the capabilities to distribute vaccines and antibiotics to the public.
- The Health Department engaged the NYC Department of Education in citywide pandemic flu planning prior to the vaccination campaign. Relationships built between the two departments helped make the campaign a success. Such planning and coordination is costly.

DETECTING DEADLY DISEASE— BEFORE IT KILLS

The Public Health Lab was critical to the City's rapid response to Ebola.



New York City's first Ebola patient arrived at the NYC Health + Hospitals Bellevue Hospital. He was getting sicker.

His contacts, the media and the public had been alerted to the probable diagnosis. Soon, the New York City Health Department's "disease detectives" would start tracking down everyone who had direct contact with him and calling each one twice daily to monitor their well-being. For many weeks, the detectives conducted the same surveillance on other individuals arriving at the airport from Ebola-impacted countries. They kept at it until each traveler exited the virus's 21-day incubation period.

The press, from the *New York Daily News* to *Infection Control Today*, was covering the exciting disease detective story in detail.

But another, less visible entity was equally critical to the rapid detection and response to Ebola: the Health Department's Public Health Laboratory, which confirmed that the patient

indeed had the disease—and did so fast enough to get ahead of the swift and vicious virus.

If there's a disease in the world, it's likely to turn up in this global city—and be tested in the Public Health Lab. That's one reason the lab is among the elite facilities that the federal Centers for Disease Control and Prevention's Laboratory Response Network (LRN) trusts with its most complex and consequential laboratory evaluations—the procedures that find a deadly substance in a biological sample—including the one for Ebola.

"We work with some pretty nasty bugs. But Ebola is a different beast."

Luckily for the patient, the Public Health Lab is also right across the street from Bellevue Hospital.

For months, the laboratorians had trained and practiced. "We work with some pretty nasty bugs, things that will kill you in 24 hours," said the lab's Assistant Commissioner. But due to the fragility of the virus, its deadly nature and the exacting assay it requires, "Ebola is a different beast."

Outside Bellevue that night, the avenue was lined with TV vans. To avoid them, police drove the Health Department's chief microbiologist to the hospital's back entrance. The microbiologist helped pack the specimen according to strict regulations.

Back at the lab, technicians set up the vessels, trays and machine. Those doing the test were protected by full Tyvek suits, gowns, gloves, masks, hoods, booties and respirators—not the outfit of choice for delicate maneuvers involving calibrated instruments, tiny test tubes and an incurable, fatal virus. The microbiologist returned to the lab within the hour. Public Health Lab staff started the testing procedure the minute the specimen was inside the door.

Three hours later, the Public Health Lab reported positive Ebola test results. For the patient, his contacts and a city on edge, those three-plus hours were the critical period. But the job wasn't finished.

The positive result had to be confirmed by the Centers for Disease Control and Prevention in Atlanta. Staff packed a duplicate specimen in a leak-proof tube inside a bleached bag inside another bag in a hard container inside a box.

A CDC staff member inspected the box. A misplaced word on the label could warrant rejection. With police lights and sirens blaring, he drove to a chartered plane on the tarmac at LaGuardia Airport.

At midnight, the Assistant Commissioner went downstairs to go home. "The Public Health Lab just diagnosed Ebola," she recalled. "The cameras were facing the other way." The reporters' attention was trained on Bellevue Hospital. To them, she was just a woman hailing a cab.

Impact

- The NYC Public Health Lab diagnosed Ebola infection in record time: less than 3 hours. The lab is prepared to handle specimens from patients suspected of having highly infectious diseases such as Ebola on an emergency basis, 24 hours a day, 7 days a week, 365 days a year.
- During emergencies—for instance, while handling high volumes of specimens during the H1N1 influenza outbreak in the spring of 2009—the lab maintained normal operations and testing for other public health threats without interruption.

Critical Need

- Trained and experienced Public Health Lab personnel available 24/7 to test for bio-threat agents, high-consequence pathogens (like Ebola and pandemic influenza) and other public health threats, such as food-borne diseases and vaccine-preventable diseases like measles.
- Well-maintained testing instruments and adequate supplies on hand at all times.
- Implementation and maintenance of automated lab systems to rapidly detect diseases and minimize spread.



A Life-Saving Process in 3 Hours

Each critical step had to be executed by the Health Department's Public Health Lab without any mistakes.



Delicate transfer
of specimen from patient to Lab



Complex testing
that followed strict safety procedures



Rapid lab results
confirming Ebola



Careful packaging
of specimen for final confirmation by CDC

INFORMING THE PUBLIC

Instant, effective communication methods were critical to calm the public's fears about Ebola.

A crowd gathered in the drizzle on Harlem's West 147th Street the night of October 22, 2014, when the ambulance arrived for New York City's first, or "index," Ebola patient. The next morning, neighbors under umbrellas watched nervously as Health Department Sanitarians moved in and out of the patient's apartment.

Then the news broke that the patient, back from volunteering in Guinea, had taken the subway, bowled in Brooklyn and eaten at a restaurant. He was monitoring himself for symptoms. When his temperature spiked, he reported it. He wasn't contagious until that moment.

But Ebola was in New York City. Fear rose like a fever.

"I had every confidence that we had the technical ability to control this disease," the Health Department's Incident Commander said later. "What was surprising, challenging—and just as virulent and contagious—was the outbreak of fear and distrust in scientific authority. I tend to [assume] that people will act rationally. But we also need to be able to communicate viscerally."

A smartphone becomes a megaphone.

Explaining why and how people should protect their own and others' health and well-being is a core function of a public health agency.

But when crisis hits, the agency must do it fast. It must communicate honestly and authoritatively, sometimes before all the facts are known. And it must keep the message correct and compelling as the situation changes.

To meet the challenge of Ebola, the Health Department's Public Information Office rolled out two major innovations: Community Outreach Teams and the Social Media Monitoring Team.

All night in Harlem and through the next days, wherever the patient had traveled, the outreach teams went, mingling, reassuring, distributing flyers headlined with the question on

everyone's mind—"Ebola: Am I at Risk?" Briefly and simply, the materials described transmission, symptoms and correct actions in case of exposure.

The teams were building on weeks of engagement leading up to the diagnosis. Aiming particularly at the affected communities of New York City's nearly 71,000 West African residents, they'd visited community centers, beauty shops, taxi lots and mosques.

As much as the Health Department staff talked, they listened. What they heard was the pain of stigma—children bullied, grocers shunned. The Deputy Commissioner noted, "Vomiting while African was turning into a public health crisis." Countering bias became central to the Ebola messaging.

Meanwhile, at the Health Department headquarters, the Department's new Social Media Monitoring Team was poring over Twitter, Instagram and Facebook, chasing dozens of keywords and hashtags to New Yorkers' feelings and beliefs about Ebola and their reactions to the Health Department's efforts. The team's urgent task: quash rumors and correct misinformation—instantly.

They fed data into the Health Department's emergency operation center and used the data to refine messaging strategies.

The Community Outreach Teams used tried and true face-to-face community organizing tactics. The Social Media Monitoring Team harnessed 21st-century technology and sensibilities to take the public's pulse as events unfolded.

These strategies turned a smartphone into a megaphone, and a bulletin into a fluid conversation between government and people. When this happens, New Yorkers are motivated to take care of themselves and their neighbors when emergency strikes.

Impact

- Community Outreach Teams, including Medical Reserve Corps volunteers, allowed the Health Department to engage and educate the community where they live and work. Teams spoke with 7,000 cab drivers at JFK and LaGuardia airports and distributed 167,000 Ebola fact cards in the community.
- The Social Media Monitoring Team reviewed up to 50,000 Ebola-related social media messages daily.
- Monitoring social media allowed public health officials to understand public concerns and questions in real time, contributing to more effective communication.

Critical Need

- Communications staff to serve as message multipliers by developing public information messages and materials rapidly, distributing materials through channels including social media and evaluating the messages' effectiveness in real time.
- Rapid translation and interpretation services for the top languages spoken in the city.
- Expanded force of dedicated community resilience staff to engage community leaders, organizations and residents in preparing for and responding to emergencies.



[Kena Botancur/Getty Images]

Unique, Fast Communication

New York has one of the first U.S. health departments to integrate social media into its emergency incident command structure.



The Social Media Monitoring Team monitored up to **50,000 Ebola-related social media messages daily**.



Between October 26 and November 9, NYC.gov received **4 million unique visitors** and **16 million page views**.



NYC Emergency Management sent Notify NYC alerts via landline, mobile, text, email and Twitter to more than **165,000 residents**.



[Spencer Platt/Getty Images]

The Health Department distributed **more than 167,000 materials** to help people determine their risk for Ebola.

TESTING THE SYSTEMS, SPEEDING THE RESPONSE

The challenge: Get life-saving medicine to 8.4 million New Yorkers after a bioterrorist attack.



August 1, 2014: Point of Dispensing staff distributes medication during a preparedness exercise.

Forty-eight hours. During that time, anthrax spores germinate within the body of a person who inhaled them. Medical interventions provide a fighting chance. After a few days without medicine, though, that person will develop rapidly progressing illness and could die.

So what if the worst happened? The question isn't theoretical. New York City has endured several anthrax attacks—in 2001, three media offices received tainted letters—and New York City remains a target.

Taking certain medications soon after anthrax exposure, but before the disease develops, can prevent people from getting sick. Could the New York City Health Department get life-saving medications to 8.4 million people before it was too late?

On August 1, 2014, the Health Department tested its ability to do so. The Health Department's Rapid Activation for Mass Prophylaxis Exercise—RAMPEX—was the largest no-notice emergency response exercise on record. RAMPEX played out, timed and monitored the journey that critical medications would take, from warehouse to bloodstream, if a highly lethal agent such as anthrax hit New York City.

Even before 2001, the Health Department was readying itself for bioterrorism, building systems to meet biological threats both common and rare, limited and broad.

By 2015, the Health Department had identified and surveyed 165 Points of Dispensing (PODs), temporary sites ready to open to provide life-saving medications to anyone who needs them after a biological attack or during a communicable disease outbreak. The Points of Dispensing are located by population density throughout the city, in walking distance of almost everyone. For those who can't get there on their own, family and friends are encouraged to pick up medications.

Could medications be delivered to millions before it was too late?

To enable rapid mobilization, the Health Department has created blueprints and instructions for each POD, detailing everything from table setup to position assignments based on staff living nearby (public transportation may be down in this type of emergency). Varying by type, size, extent and location

of an incident, the plans comprise a prix-fixe menu, simplifying choices for officials charged with green-lighting emergency measures before all the facts are in.

The RAMPEX clock started at 5 AM, when an automated call woke over 1,000 employees from 13 City agencies with a message to report to their assigned POD. Some things went swimmingly: Of the almost 900 participants in the field, many arrived at their sites ahead of schedule. Other things, not so much: Some trucks carrying supplies from warehouses were delayed in transit, forced to reroute due to height restrictions on their pre-identified route.

Still, by 2:58 PM RAMPEX had tested all of the components of mobilizing the Health Department's mass prophylaxis response. Thirty PODs in five boroughs were stocked, staffed and ready for business in less than eight hours; some were ready in less than six. While it highlighted some gaps, the exercise and its results were unprecedented. The Health Department was closer to assuring the health of New York City's millions of residents and visitors in the event of a bioterrorist attack.

Impact

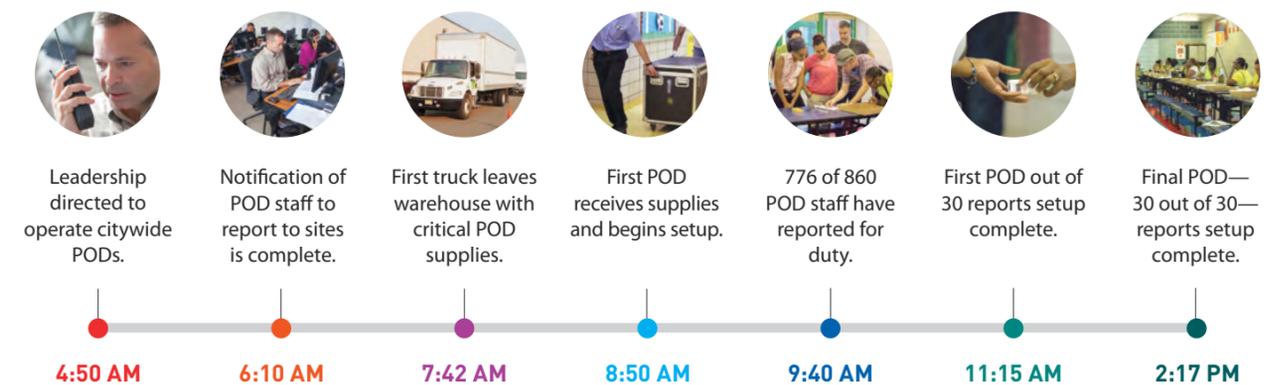
- The Health Department has trained over 3,000 staff members on how to set up and operate PODs, and assigned them to sites near their homes.
- PODs have been used in a variety of public health emergencies, from providing vaccines during the H1N1 flu epidemic to administering preventive vaccines to thousands of New Yorkers exposed to Hepatitis A by food handlers diagnosed with the disease.

Critical Need

- Continued support for complex exercises to further test and improve plans.
- In NYC alone, prophylaxis on a citywide scale will require **33,000 POD staff** to support 48 hours of dispensing operations. To meet this demand, NYC needs to expand its pool of resources for response, including non-mission-essential federal employees to supplement the local response to a public health emergency.
- Medical countermeasures from CDC's Strategic National Stockpile (SNS) should be forward deployed, in reasonable quantities, to high-threat, high-density urban areas that have demonstrated an ability to stand up PODs faster than SNS medications can be delivered to jurisdictions and subsequently distributed to PODs.

Emergency Preparedness in Less Than 8 Hours

AUGUST 1, 2014: Thirty PODs in five boroughs were stocked, staffed and ready for business in less than eight hours; some were ready in less than six.



DEPLOYING NEW YORK CITY'S DEDICATED VOLUNTEERS

The New York City Medical Reserve Corps is ready to deliver in emergencies.

At a Brooklyn shelter, a Medical Reserve Corps (MRC) psychologist found a Russian speaker among Hurricane Sandy evacuees to interpret for a terrified elderly immigrant couple. When the interpreter left the shelter, the psychologist gave the couple his own cell phone and the interpreter's phone number so they could call if they needed help.

A family arrived at a Manhattan shelter during Hurricane Sandy with rashes. A MRC physician was called to the shelter, where she diagnosed scabies and isolated the family to prevent contagion. Then she wrote the prescription, walked to the pharmacy and brought the medicine back.

A physician took an hour-long subway ride to an outlying neighborhood every night to cover the midnight to 8 AM shift at the Hurricane Shelter. Volunteer doctors changed adult diapers; a nurse cleaned the bathroom.

"They are mission driven," said the Director of the New York City MRC, one of the nation's largest, with over 7,700 volunteer healthcare professionals vetted and trained to supplement a stretched New York City Health Department staff during emergencies.

From physicians and nurses to veterinarians and acupuncturists, "they have this mentality that they are there to help, and that means doing whatever needs to be done."

During the response to Ebola, the MRC stood ready to assist. Over 500 MRC volunteers were trained to deliver key health messages at community events throughout New York City.

"The community had questions, and we had the answers," said the director.

This is not to say that the MRC does not meet any challenges. During Hurricane Sandy, for instance, calls from volunteers poured into the MRC office so fast that the three people covering the phones, including the director and the Corps's coordinator, were overwhelmed.

Since that time, the Health Department has instituted a new automated system to address the intricacies of volunteer scheduling, matching availability and skills to need, during a constantly changing emergency. MRC members can now log into a website that displays shifts available for their roles and sign up for assignments. Had the system been available in 2012, the Health Department might have deployed as many as 3,000 additional volunteers whose desire to work was hampered during Hurricane Sandy.

Difficulties notwithstanding, New York City's MRC received the Surgeon General's Community Resiliency Award in 2013, recognizing its work in Hurricane Sandy. One member, a psychologist specializing in neuropsychological rehabilitation, was honored as Outstanding MRC Responder for her 158 hours of service during the storm.



7,733
MRC volunteers
serve NYC, bringing
a wide range of
healthcare experience.



4,479
clinical staff
volunteers



1,535
mental health
volunteers



1,412
other healthcare
professional volunteers



307
non-medical
volunteers



Photo by Kristen Lepore, Region 2 MRC Coordinator

Impact

- During Hurricane Sandy, the MRC deployed 1,230 volunteers who provided almost 19,000 hours of service. Many served multiple shifts.
- After Ebola's arrival in New York, volunteers reached out to over 7,000 cab drivers to educate and alleviate any stigma related to passengers of West African descent.
- More than 500 MRC volunteers were trained to present Ebola 101 courses to inform and educate healthcare professionals, first responders and the community.

Critical Need

- Create a unified federal, State and local strategy to optimize the use of healthcare volunteers during emergencies and through recovery efforts.
- Maintain a robust MRC volunteer registration and credentialing system, expand recruitment of additional volunteers and continue to offer robust opportunities for trainings and exercises to maintain volunteer engagement.
- Further develop and enhance an electronic system that supports rapid MRC staffing during emergencies.



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