New York State NURSES ASSOCIATION One strong, united voice for nurses and patients

Continuing Nursing Education Take Home Packet

The New York State Nurses Association (NYSNA) is accredited by the International Association for Continuing Education and Training (IACET) and is authorized to issue the IACET CEU.

The New York State Nurses Association is accredited as a provider of continuing nursing education by the American Nurses Credentialing Center's (ANCC) Commission on Accreditation.

By completing the courses in this packet, participants will be eligible to receive up to 5.5 CH/.5 CEUs. Each module includes a complete list of goals and objectives and notifies the participant of the number of ANCC contact hours and IACET CEUs that will be conferred upon completion of the program.

In order to receive contact hours **for each module**, participants must read the course material, complete and return the post-test answer sheet with a score of 80% or better, and submit the completed evaluation for the course. The completed post-test answer sheet and evaluation must be returned to NYSNA no later than the date listed in the module.

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Part 2

Healthcare Workers at Risk:
Preparing for Active Shooter Incidents

This continuing nursing education (CNE) activity gives members an opportunity to earn **1 Contact Hour (CH)** and **0.1 IACET CEU**. In order to obtain the CH/CEU, you MUST complete the post-test answer sheet with a score of 80% or better and submit the answer sheet and the completed evaluation. Contact Hours/CEUs will be awarded for this take-home course until **October 11, 2020.**

Healthcare Workers at Risk:

Preparing for Active Shooter Incidents

NYSNA Continuing Education

Healthcare Workers at Risk:

Preparing for Active Shooter Incidents (1.0 CH / .1 CEU)

NYSNA Continuing Education

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NYSNA is accredited by the International Association for Continuing Education and Training (IACET) and is authorized to issue the IACET CEU.

This course has been awarded 1.0 contact hours and 0.1 CEU and is intended for RN's and other healthcare providers. In order to receive contact hours/CEU participants must read the course material, complete and return the post-test answer sheet with a score of 80% or better, and submit the completed evaluation for this course. Contact hours/CEUs will be awarded for this take-home course until October 10, 2020.

All American Nurses Credentialing Center (ANCC) accredited organizations' contact hours are recognized by all other ANCC accredited organizations. Most states with mandatory continuing education requirements recognize the ANCC accreditation/approval system. Questions about the acceptance of ANCC contact hours to meet mandatory regulations should be directed to the professional licensing board within that state.

NYSNA wishes to disclose that no commercial support was received.

NYSNA's program planners and presenters disclose no conflict of interest.

Introduction:

Although active shooter incidents in healthcare facilities have been rare, they do happen and are increasing in frequency. There are very particular issues that arise in the healthcare setting, and relatively little attention has been devoted to this subject. This material is an introduction to healthcare-related issues and concerns regarding active shooter incidents. It provides an overview of some work that has been done from a healthcare perspective. It does not and should not be taken as an exhaustive guide to dealing with active shooter situations.

"Run, Hide, Fight" has been the mantra of active shooter training programs. This is advice for what to do *once* an active shooter event happens. And it is highly individualized. While it might be possible to organize collective action around any of the three recommendations, it is really leaving it up to individuals to decide what to do and when to do it.

The Run, Hide, Fight advice is not necessarily a good fit for healthcare workers in general and nurses specifically. Nurses' responsibility, morally and legally, is to their patients. So leaving patients behind is of course a problem. Many training programs don't address this issue at all. The ones that do approach it this way: "If you are killed or injured you won't be able take care of patients. Most active shooter incidents last only five minutes or so. Run and hide and then return to your patients."

If a shooter is in or heading toward the NICU or the ICU can or should nurses run?

Related to this concern is the fact that even if an actual shooting takes place over minutes, the police investigation of what has become a crime scene can take many hours. And some shootings, like the Orlando nightclub incident, unfold over a long period of time.

An overarching issue in healthcare health and safety is the unwillingness of management to talk to and work with frontline staff. We see this again in the context of active shooter planning. Management at many facilities hosts training by former or current police officers who have a good but generic presentation. Interaction with staff in advance could provide the basis for much more meaningful training.

It is important to add an additional mantra: "Assess, Plan, Drill." This puts the horse before the cart – it puts the focus on advance preparation and prevention, *before* an event takes place, and makes it a collective project – including the participation of frontline staff -- that is the responsibility of management to facilitate and support.

This is the guiding principle of this program.

Course Objectives:

At the completion of this learning activity the learner will be able to:

- Describe risk factors for potential workplace violence and active shooter incidents.
- Identify methods to decrease the risk of an active shooter occurrence in a healthcare setting.
- Discuss the competencies and role of the healthcare worker in response to shooter incidents.

- Restate the actions recommended for healthcare workers in an active shooter incident.
- Identify resources for further education and support for healthcare workers at risk for active shooter incidents.

About the Author:

David Pratt has been an occupational health and safety specialist since 1987. He is an authorized OSHA trainer. He has developed and taught emergency response training programs in a wide range of industries. He was formerly the chair of the Long Island Health and Safety Committee and a board member of the Long Island Occupational and Environmental Health Clinic. He has lost two associates to active shooter incidents that occurred in Detroit, Michigan and San Juan, Puerto Rico.

Part I Risk Factors

While there are high rates of violence in hospitals and nursing homes, there have been relatively few cases of mass shootings – at least so far. According to a Johns Hopkins study for the years 2000-2011 there were 154 hospital-related shootings — or an average of 14 per year. The number of shootings per year is on the rise – both overall and for hospitals specifically.

The risks of active shooter incidents have come to the forefront in New York due to the shooting in July 2017 at Bronx-Lebanon Hospital.

Risks associated with active shooting incidents can be divided into different areas. There are risks associated with our workplaces – vulnerabilities – that can make an incident more likely to take place. There are risks related to society as well. Some of these are directly related to patient care. The downsizing and understaffing of facilities, for example. Others are broader societal trends or developments, such as the high rates of domestic abuse and high rates of gun ownership.

A. Societal Issues that Contribute to Risks of Active Shooter Incidents

A range of dynamics in our society contribute to both the risk and the reality of violence in healthcare.

- The United States is still three times more violent than other industrialized societies, despite a decline in violence over recent decades. Gun ownership in the U.S. has declined since the 1970's, but there are still roughly 270 to 310 million guns in the country. One-third of households admit that they have guns. (Pew Research Center).
- Domestic violence is also rampant. Each year there are over two million injuries and 1,300 deaths attributed to domestic violence. In New York State 300,000 orders of protection are issued every year. And of course not all cases of domestic violence result in protective orders. (*Live Your Dream*).
- Incarceration is yet another factor. The United States has the highest rate of incarceration in the world, having 716 people in prison for every 100,000 people (*Washington Post*). Inmates frequently end up in hospitals for a range of care. And the behaviors that are reinforced in jail and prison can present themselves in other settings, including the hospital.

To-date incidents in hospitals have not been of an ideological or political nature (such as the Oklahoma City bombing or the Charleston, SC church shooting).

B. Healthcare Issues that Contribute to Risk

Healthcare is under tremendous pressures. On one hand the Centers for Medicare and Medicaid Services (CMS) and other agencies have stressed the need for "patient-centered care". Press Ganey scores are one manifestation of this dynamic. At the same time reimbursement rates are falling and pressure is increasing to keep patients out of the hospital or to reduce re-admission rates. These dynamics have in turn played a role in understaffing.

Studies have shown that poor staffing, particularly of MDs, increases the rate of assaults. Studies have also shown that good staffing can reduce the injury rate for nurses due to needle-sticks, lifting and workplace violence.

Patient (and patient's family) frustration over care, including poor staffing, poor care procedures or lack of equipment are factors in assaults. And patients and their families come to healthcare facilities with a range of fears and frustrations due to the costs and bureaucratic difficulties of dealing with the healthcare system.

While we have less immediate control over larger social issues and dynamics, nurses are active around gun control, domestic violence and, of course, campaigns against cuts to healthcare and in favor of a fair, effective and equitable healthcare system.

C. Risks/Types of Healthcare Facilities and Individuals Involved

The types of facilities that have had active shooter incidents do not correlate exactly with the expectation that they would always occur in large, urban hospitals. Incidents have taken place primarily in medium-sized facilities. The greatest number have been in the South, the fewest in the Northeast.

Facilities in the 100-399 bed range were the location of 53% of the incidents tracked in a 2012 study published in the American College of Emergency Physicians (*Hospital-Based Shootings in the United States: 2000 to 2011,* Gator D. Kelen, MD, Christina L Katlett, MD, Joshua G. Kubit, MD, Yu-Hsiang Hsieh, PhD). Nearly half of all hospitals are in this size range. Large hospitals do have a high incidence rate of active shooter incidents, however. In terms of geography, the South had 44% of the incidents, the Midwest and West 20% and 21% respectively and the East 15%.

Data also provides insight into who has been involved in hospital-based active shooter incidents:

- Men: An FBI study of a two year period shows that only 3 out of 40 shooters were women. (*Active Shooter Incidents in the United States in 2014 and 2015*).
- Domestic abuse: A recent Everytown for Gun Safety analysis of crime records between 2009 and 2016 found that 54 percent of U.S. mass shootings in that time period involved the murder of a family member or intimate partner. (*Mass Shootings in the United States: 2009 -2016).*
- History of domestic abuse: The shootings at the Fort Lauderdale airport; Virginia Tech; Isla Vista, California; Orlando's Pulse nightclub; and San Bernardino were all committed by men who had histories of abusing women.
- Aggrieved or bullied workers: Based on an FBI study of 40 incidents, only three involved workers carrying out shootings at their workplaces. So while "going postal" is common in the public's perception, it is actually rare relative to other forms of workplace violence.

D. Risks: Where in the Facility?

According to a Johns Hopkins study 51% of hospital incidents took place inside the facility and 49% somewhere on the grounds. Emergency departments were the most common location of shootings (29%), followed by patients' rooms. Parking lots are also a common venue. (*Hospital-Based Shootings in the United States: 2000 to 2011,* Gator D. Kelen, MD, Christina L Katlett, MD, Joshua G. Kubit, MD, Yu-Hsiang Hsieh, PhD). It is important to recognize that shooting incidents may start or end anywhere in a facility. Family tensions and domestic abuse incidents can play out on labor and delivery and mother baby units, for example.

Analysis of past incidents helps us focus on certain areas. But all areas need to be taken into consideration when coming up with controls and protective measures.

E. Risks: Who Are Victims?

Twenty percent of the shooting victims in hospitals, according to the John Hopkins study, were hospital staff. Of that, nursing staff made up the largest percentage (5%) of hospital casualties, followed by doctors.

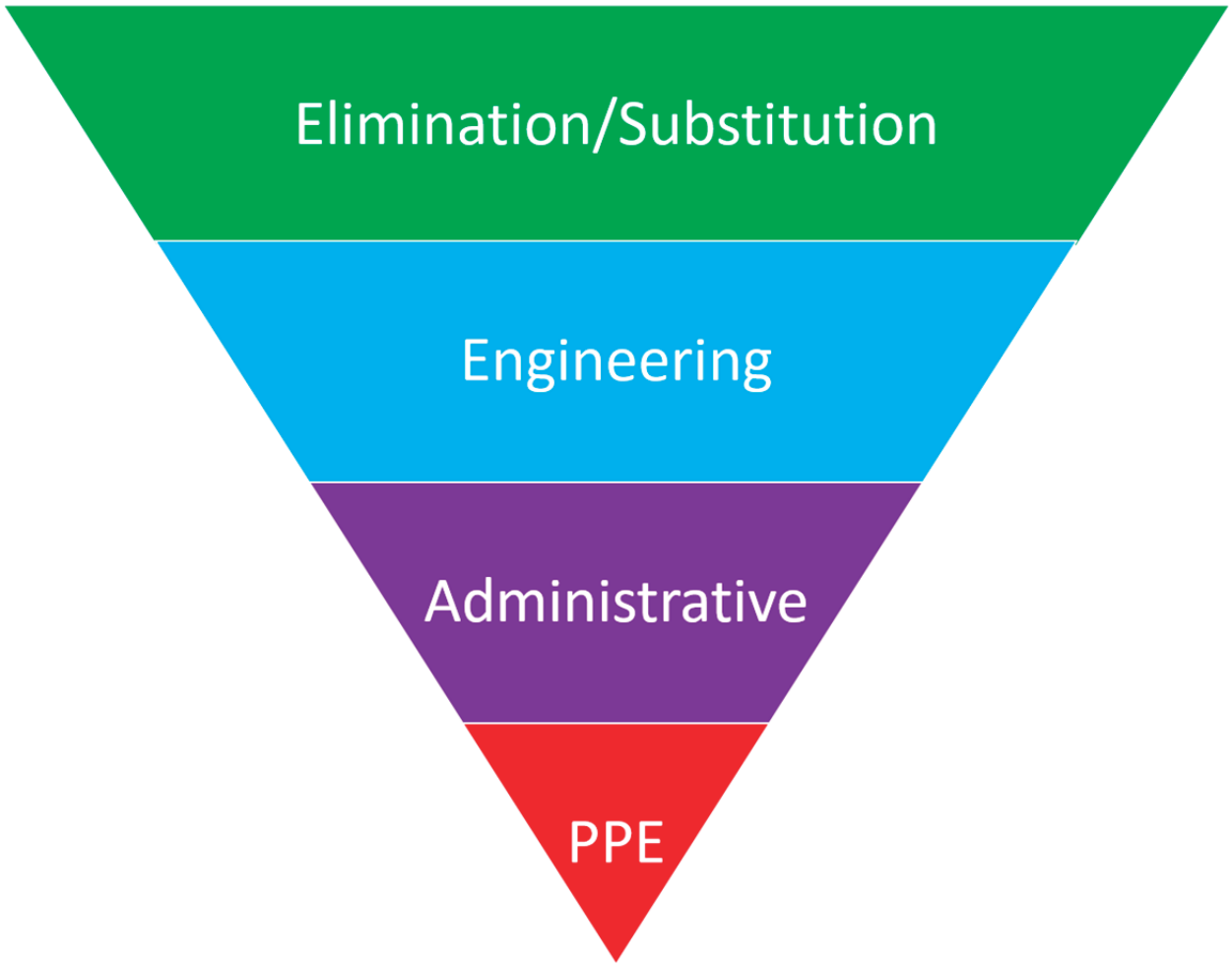
Real Life Examples from Healthcare

- Patient walked into a clinic at a Kings County Hospital and shot a doctor over a dispute regarding disability paperwork.
- Ex-husband shot former wife in the labor and delivery unit of a New York hospital.
- Ex-husband shot former wife in the parking lot of a Florida hospital.
- Patient threatened to shoot staff in hallway of a Connecticut hospital; was tackled by a nurse who in turn was shot three times.
- An inmate getting treatment at a Pennsylvania hospital took a police officer's gun, held a nurse hostage, barricaded himself in a room and raped the nurse.
- Relative of an ED patient came to Southside Hospital with a gun, supposedly to protect his brother from another gang. Nurses got him out of the ED but he started to fire his gun in the parking lot of the hospital.
- Former doctor accused of sexual harassment and discharged returned to Bronx-Lebanon Hospital and shot seven people, killing one. The shooter tried to set fire to himself and then shot himself.

Part II: Controlling Hazards Related to Active Shooter Incidents

A. The Hierarchy of Controls

When faced with any safety or health hazard in the workplace, it is important to employ the concept of the hierarchy of controls. Under this system management must always look first for the best possible way to control a hazard. The hierarchy looks like this:



Here we have turned the hierarchy of controls on its head, with the best control at the top and the least best (personal protective equipment) at the bottom. Many of the controls for workplace violence are going to come under the engineering and administrative categories. Panic alarms and special safe rooms would be examples of engineering controls. Visitor access policies would come under administrative.

Whenever possible we want the hazard eliminated. While this can be difficult in the hospital environment, we can go down the list of controls and choose the ones that will be most effective at reducing the risks of a hazard. And we may need to implement several different kinds of controls to have the most impact.

While we may not be able to eliminate the risk of violence in society in general, we can expect management to implement measures that will reduce the risk of a shooting happening in the hospital and reduce the risk to staff and patients if a shooting should start in the hospital.

Q: What would be an example of engineering controls that could be used during an active shooter incident?

A: The ability to lock a unit and/or the creation of a safe room within a unit.

Q: Why not just provide bullet-proof vests and even guns to staff for use during active shooter incidents?

Why might this be problematic?

B. What are the Hazards Associated with Active Shooter incidents?

"Well that's a crazy question. The hazard is that we are going to get shot!"

Yes, but to come up with effective controls we may need to dig a little deeper. And we have to anticipate roadblocks or issues particular to healthcare that make it different from other workplaces.

Issues particular to an active shooter in a healthcare facility:

- Patient care. Even temporary disruption can result in adverse outcomes. The NICU, ICU, nursery or ED – there are many areas where patient care cannot be interrupted.
- Hazardous materials. Even oxygen can be extremely hazardous in the presence of fire or firearms. And a hospital has many hazardous materials on site, including hazardous waste and radioactive materials specifically.
- Extremely "porous" building access policies. Most hospitals have moved to "free for all" visitation policies; most do not even have visitors check in.
- Evacuation challenges. Hurricane Katrina, the 9/11 World Trade Center attacks and Superstorm Sandy disclosed a range of difficulties with evacuation of buildings.

- Issues around returning to regular routine after the shooting but during the police investigation. The building is a crime scene – how do we go back to full patient care if that is the case?

At this point there are no clear and satisfying solutions to these special challenges. Going forward they have to be taken into account. And we can and should be raising them in safety meetings or other contact with management in our facilities.

C. Hazards within Hazards

We can also anticipate additional hazards within the context of an incident.

- If evacuation of patients is part of a protocol, then how can it be done as safely as possible for staff and patients?
- If there are wounded in the building, will nurses and others start assisting them even when the event is going on?
- What are the plans if a unit or units have to be locked down for an extended period of time? The 2016 shooting in Orlando, for example, dragged on for hours.
- What about a nurse's code of ethics. Nurses may be forced to choose between staying with their patients or running. What if there are adverse outcomes as a result?

Again, these questions are easier to raise than to answer. Part of our challenge is to make sure these and other key issues are on the table, that they get discussed and solutions sought.

D. Violence within Violence

One way to approach active shooter hazards is to place them within the broader context of violence in healthcare overall. Nearly all violent incidents in hospitals and long term care involve patients or visitors assaulting staff. Most facilities do not have adequate controls or systems to deal with this epidemic of violence. If we fight for protections against this violence, we will win some protections around potential active shooter incidents.

Nursing associations and unions are working for improved protections against all kinds of workplace violence. Active shooter incidents are a rare subset of the larger problem.

Here are some specific areas where we could see a win-win:

- **Access Controls.** Many facilities in larger healthcare systems have put in place access controls similar to those in many office buildings. Visitors have to check-in with security, provide an ID, have their photo taken, get a badge for their visit and go through a turnstile.

Q: What are some advantages of this system?

A: One advantage is that it sends a message to everyone that security is more professional and serious. Security is more likely to know if someone who has been violent or threatening in the past is trying to enter. They will then be able to take action before the person is in the hospital.

- **Violence assessments**. The New York State workplace violence law for public sector workers mandates that employers conduct facility-wide assessments that look for specific issues and hazards that can lead to or contribute to workplace violence incidents BEFORE THEY HAPPEN. This should be done in all facilities.

These are just two examples of measures that can protect against workplace violence in general and active shooter situations specifically.

E. Active Shooter: Preventative Measures

Because so little attention has been paid to active shooter incidents in healthcare settings, it is important to be clear that there is not currently one exhaustive list of all the measures needed to protect against incidents. Some issues and controls are coming into focus, however, and we can start with those.

- **Workplace Violence Assessment in General.** Because active shooter is just one of a number of potential (and real) violent incidents in healthcare settings, it makes sense that an overall violence assessment will be productive. Measures put in place in general may have a benefit in terms of reducing the chances of an active shooter tragedy.
- **Threat Assessment Teams (TATs)**. No, not tattoos. Threat Assessment Teams are a way for staff to assess the potential for future incidents. These are now common in educational settings (following Sandy Hook and the Virginia Tech shootings).

> "The TAT serves as a central convening body that ensures that warning signs observed by multiple people are not considered isolated incidents and do not slip through the cracks as they actually may represent escalating behavior that is a serious concern."
> (Health and Human Services Administration).

A warning about TATs. While very little workplace violence is caused by employees, many employers tend to place great emphasis on this area of workplace violence. The TAT may get skewed in this direction – focusing mostly on employees – and lose usefulness and possibly become part of a disciplinary tool. To be effective the teams have to be truly inter-disciplinary, so many voices and areas are represented. To this end they should include front-line staff.

- **Drills.** All emergency planning stresses the need for drills. With good reason: drills can bring out potential weaknesses in planning and protections. And they can provide valuable real-life practice.
- **Communication.** Ongoing inter-disciplinary communication is a method that may reduce violence hazards and can help prepare for them. One hospital, for example, started to include security staff in shift-change huddles.

F. Learning As We Go: Analysis of an Active Shooter Drill

Review the attached article on a drill done in a hospital emergency department. Answer these questions:

1. Why did they do a real drill rather than table-top or other exercises?

2. What shortcomings did they find in the response?

3. What went right in the drill?

4. How would your facility do if such a drill took place? What weaknesses might it uncover?

G. Preparing for an Active Shooter Event

Policy:

Does your facility have an active shooter policy? Is active shooter incorporated into their Emergency Operations Plan (EOP)? These questions get at a central issue of preparation for active shooter incidents. The purpose of a policy is to tailor response measures to your facility. And it makes it possible to practice or drill and then evaluate strengths and weaknesses. Arriving at a policy can be a way to root out issues and arrive at solutions, if done by including front-line staff.

Communication.

Advance work on emergency communication can pay off when real events take place.

An example of poor communication can be found in an employer's response during a shooting event on Long Island. The shooter came into the emergency room, was removed from the building and then started shooting in the parking lot. Staff arriving for the next shift, however, were never notified of the unfolding events. So they kept walking and driving toward the building and going into work as usual. An emergency text message system would have solved this.

Analysis of active shooter events and studies have borne out that vague, "secret" or coded communication is not fully effective. They indicate that people in general do better in emergencies if they are given clear, honest information. Panic stems from confusion or a lack of information. It is important for everyone in a facility to have access to timely and extremely clear information about what is happening.

According to the Healthcare & Public Health Senior Coordinating Council, these are some of the elements that should go into preparation:

- A method of reporting active shooter incidents
- An evacuation policy and procedure.
- Emergency escape procedures and route assignments (floor plans and safe areas).
- Lockdown procedures for individual units and locations and other buildings.
- Info on local area emergency response agencies and hospitals.

While active shooter incidents are rare, nursing associations and unions have been deeply involved in workplace violence issues in many facilities. They have also started to evaluate active shooter plans. And sadly, recent shootings, such as the one in New York City at Bronx-Lebanon Hospital, have made it possible to participate first hand in the evaluation of an incident.

Nurses' involvement in this issue has led to a focus on several primary means of preventing or protecting staff and patients from an active shooter incident. These are:

1. Building access measures.
2. Unit lockdown measures.
3. Safe rooms within units and areas throughout the facility.

These measures are rudimentary and well established in most institutions. Not so in healthcare. Unlike many facilities nowadays, hospitals are essentially wide open, with unlimited access. The measures mentioned above have to be a priority in preparing for and preventing active shooter incidents.

While some units are routinely locked or controlled, such as labor and delivery, most are not. This could be changed. If units could be sealed, preventing an assailant from moving around the hospital, it would solve the problem of how to continue care and protect staff and patients alike.

If a shooter gets into a unit, it would then be important to have a way for staff to hide in a locked room. Even better would be a room where staff and patients can be secure. Some facilities are looking into having safe rooms on each unit. More needs to be done in this area.

H. Sample Inspection Report

An inspection conducted following a shooting at Bronx-Lebanon Hospital is instructive. Here are some details:

- Staff-only entry areas should be considered with activated hospital ID card access.
- Tighter security at the ACN entrance during hours when ambulatory care is closed. During off hours the entrance door can only be unlocked with a key fob provided to staff. However, others often "piggy back" on employees who are entering this way. There is no security guard stationed at this egress during this time.
- The hospital should consider limiting visitation to specific hours and limit the number of visitors per patient. The current system has created conflict between nurses, guests and visitors.
- Visitors should be required to provide identification which can be scanned into a computer to create a pass with the visitor's picture on it. This information should also be saved in the visitor database so that, if a visitor behaves in a way that is considered unsafe and is asked to leave, a photo of the visitor exists if s/he tries to enter the facility again.
- The hospital should consider the use of metal detectors to stop weapons from being brought into the facility. This is commonly done in government buildings, high schools, and other areas where the risk of violence is high.
- Locks should be installed on doors that lead into units. Locking and barricading these doors during an active shooter situation could protect both patients and staff.
- Safe areas with locked doors should be designated on each unit where staff can hide should an active shooter situation occur.
- Areas that should not be accessed by visitors and patients without an accompanying staff person should be equipped with key card (ID swipe) locks to control access.
- An improved communication system should be instituted to provide staff with clear information and directions, in real time, during an emergency situation. Staff not currently working should also be notified so that they do not, unknowingly, enter a dangerous situation.
- If security personnel are given responsibilities such as greeting visitors and providing wristbands, there should be enough personnel available to also keep an eye on waiting areas, etc.
- The greeter/triage nurse in the ED should be provided with a more protected workspace that does not limit emergency egress.
- Staff should be notified of the location of panic buttons in the ED.
- Better access control is needed on the 3rd floor Ambulatory Surgery Unit to limit access before 6:00 am and between 7:00-9:30pm.

If an Active Shooter Event Takes Place

Based on initial discussions and assessments of active shooter events, here are some elements that should be in place:

1. An effective warning system that everyone can understand.
2. The ability to lock down units.
3. Designated captains on each unit who have the role of transmitting information to other staff and back to emergency management personnel.
4. Safe rooms.
5. Evacuation procedures that have been tested and practiced.
6. Fall-back patient care plans in the event that crime scene investigation disrupts areas of the facility for long periods of time.
7. Resources post-event for staff who require support for emotional issues related to a traumatic event.

Nurses' Role

Nurses play a central role in advocacy around patient and staff safety. This is just as true when it comes to the issue of workplace violence and active shooter preparation.

However, some management teams rarely see it this way. Sometimes, it can be a struggle to get management to hear the voices of frontline staff.

There are a number of ways to ensure that nurses' voices are heard:

- Set a goal of winning some of the measures and protections mentioned in this training.
- Make sure that one or more members from your facility attend Health and Safety Leader training sessions. They can then become a liaison with the health and safety staff, helping plan and carry out campaigns.
- Work with the NYSNA health and safety representatives to investigate violence hazards in your facility. We can do on-site inspections, member surveys and reviews of policies and incident records.
- Bring continuing education training programs on workplace violence to your workplace.
- Determine which issues and demands can be developed into campaigns that garner broad member support.
- Consider over-arching contract language on health and safety that can in turn be used to take on specific hazards in the future.
- Bring issues to facility environmental safety meetings, labor management or practice meetings.

Resources

Active Shooter : How to Respond. U.S. Department of Homeland Security (DHS). This pamphlet provides guidance to individuals, including managers and employees, who may be caught in an active shooter situation, and discusses how to react when law enforcement responds.

Active Shooter : Recommendations and Analysis for Risk Mitigation From the New York City Police Department (NYPD). This document contains recommendations based on a close analysis of 281 active shooter incidents from 1966 to 2010.

Active Shooter Planning and Response. Healthcare and Public Health Sector Coordinating Council

ASIS Guideline : Workplace Violence Prevention and Response (2005). This guideline presents practical definitions of workplace violence and the continuum of acts, from less severe to more severe, and a classification of workplace violence incidents based on the relationship of perpetrator to victim. It outlines prevention strategies and procedures for detecting, investigating, managing, and following up on threats or violent incidents that occur in the workplace. ASIS members may download once for free; additional copies, and copies for non-members, are available for purchase.

ASIS/SHRM Workplace Violence Prevention and Intervention Standard (2011). This Standard provides an overview of policies, processes, and protocols that organizations can adopt to help identify and prevent threatening behavior and violence affecting the workplace, and to better address and resolve threats and violence that have actually occurred.

Coping with an Active Shooter situation: a pocket card. A card designed by DHS to help those in an active shooter situation know how to respond.

Cultural Properties Council Recommendations for Preparing Museums for Active Shooter Situations. From the ASIS Cultural Properties Council. This document lists some points for all museums to consider to be prepared for an active shooter incident.

Identifying and Preventing Active Shooters. Presentation by Darrell Clifton, CPP, Circus Director of Security, recorded September 10, 2012, during the ASIS 58th Annual Seminar and Exhibits. Available as streaming media.

Incorporating Active Shooter Incident Planning into Health Care Facility Emergency Operations Plans.

Mass Homicides by Employees in the American Workplace. Seungmug (Zech) Lee, PhD and Robert McCrie, PhD, CPP ASIS International Foundation CRISP Report, 2012 In Mass Homicides by Employees in the American Workplace, authors Seungmug (Zech) Lee, PhD, Western Illinois University, and Robert McCrie, PhD, CPP, John Jay College of Criminal Justice, analyze 44 cases of workplace mass homicides (WMH) from 1986 to 2011. While homicides by employees occur with low frequency, they have a profoundly harmful impact. Negative consequences accrue to the immediate location; reach across the entire organization and outward to the surrounding community. This report, which presents profiles of workplace killers, offers security practitioners, senior executives, and HR manager's critical insight into common triggers, risk factors, and trends associated with workers who make threats against others in the workplace.

NRF-ICSC Emergency Response Protocols to Active Shooters: Retail Supplement to DHS Active Shooter Materials. A pamphlet from the National Retail Federation that supplements the DHS pamphlet as a retail-specific document.

Preventing Gun Violence in the Workplace. Dana Loomis, PhD

ASIS International Foundation CRISP Report, 2008. New legislation may complicate your company's "no-weapons" policies. And there are many more potential perpetrators than just the usual suspects, from disgruntled former employees to domestic disturbances gone toxic. This report details the host of practical opportunities to prevent problems and minimize potential threats.

Trends in Extreme Workplace Violence. Presentation by Randy Spivey, Center for Personal Protection and Safety, recorded September 10, 2012, during the ASIS 58th Annual Seminar and Exhibits. Available as streaming media.

Professional Development Active Shooter: Readiness, Response and Recovery (Online Course). From the Center for Personal Protection and Safety, an online training program that takes head-on the critical issue of an Active Shooter situation. Join the CPPS panel of experts as they address the Active Shooter situation through the lens of Personal Survival and Response as well as explore practical Prevention Strategies and solid, organizational Contingency Planning considerations. People and organizations CAN survive this tragedy. Online course (15 hours) available for fee; 20% discount for ASIS members.

Active Shooters in Healthcare Environments: Protecting Patients, Staff, and Visitors (Recorded Webinar). As healthcare institutions face steadily rising crime rates, including violent crimes such as homicide, it is important that they work to prevent and plan for the possibility of an active shooter. Highlighted in the presentation are details from actual incidents, risks specific to healthcare environments, key planning points, and communication processes during emergencies. ASIS webinar (90 minutes) presented December 2011, available for purchase from ASIS Store as a CDROM or streaming media.

Lessons Learned: Trends in Extreme Violence in the Workplace (Recorded Webinar). Although no one is exempt from the threat of an active shooter, you can be part of the solution. Through knowledge and awareness, you can fill the "extreme danger gap" of time until first responders arrive. Topics include: reorganizing pre-incident indicators; the survival mindset; courses of action during an active shooter event; response when law enforcement arrives. ASIS webinar (90 minutes) presented on May 16, 2012, available for purchase from ASIS Store as a CDROM or streaming media.

Perspectives on Security: The New Workplace Violence (Recorded Panel Discussion) Violence in the workplace continues to make news headlines and is a vital concern to Security, Human Resources, and Management across all industries.

Threats, verbal abuse, physical assault, and homicide in the ASIS International – IRC : Active Shooter resources / April 2013 Page 3 of 4 The panel examined the issues and the latest information on assessment, prevention, and mitigation of this growing threat. Panel discussion (80 minutes) recorded at the ASIS International 57th Annual Seminar in Orlando, Florida, on September 22, 2011, available for purchase from ASIS Store, Item #: 1972.

Handbook on Prevention. Joshua Sinai, Ph.D. ASIS International, 132 pp., 2012 Spiral-bound Active shooter incidents have become pervasive and frequent in our society. When they occur, they often

result in large numbers of fatalities and injuries to innocent civilians. The information in this handbook is intended to provide all those involved in public safety, whether law enforcement or private sector security personnel, a comprehensive understanding of this threat and how to respond, manage and, if possible, prevent it. Available for purchase from the ASIS Store, Item #2040.

Aggression in the Workplace: Preventing and Managing High-Risk Behavior. Marc McElhaney, Ph.D. Author House, 240 pp., 2004 Softcover This book presents experiences and perspectives, draws conclusions based on these experiences, and offers guidelines that address the issues of aggression and high-risk behavior that often occur within an organization.

Security Manager's Guide to Disasters: Managing Through Emergencies, Violence, and Other Workplace Threats. Anthony D. Manley CRC Press, 408 pp., 2009 Hardcover The book provides strategies for preventing or reducing the severity of an incident and initiating immediate and professional responses to reduce the loss of life, injuries, property damage, and liability. It also provides instruction on adequate interaction and cooperation with public safety agencies, local government, and other public and private utility services. By focusing on response, recovery, and restoration, this essential reference lays out a system for placing the business or institution back into operation as soon as possible. A

Violence at Work: Causes, Patterns and Prevention. Martin Gill, PhD, Bonnie Fisher, and Vaughan Bowie, Editors Willan Publishing, 225 pp., 2002

Workplace Violence: Before, During and After. Sandra L. Lanier, CPP™ ASIS International, 190 pp., 2003 Softcover This book is the most comprehensive source available for preventing and managing violent incidents in the workplace.

Workplace Violence: Planning for Prevention and Response. Kim M. Kerr, CPP™ Elsevier/Butterworth-Heinemann, 342 pp., 2010 Hardcover

Workplace Violence: Planning for Prevention and Response gives a comprehensive account of the problem using a multi-faceted approach to the issues surrounding workplace violence incidents, addressing how the events affects victims, witnesses, the workforce, family members, and management.

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BRIEF REPORT

Lessons Learned From an Active Shooter Full-Scale Functional Exercise In a Newly Constructed Emergency Department

Bryan Wexler, MD, MPH; Avram Flamm, DO, EMT-P

ABSTRACT

Objective: The primary objective of this exercise was to conduct a full-scale functional exercise utilizing an active-shooter-based scenario to test and evaluate hospital response and coordination with local law enforcement.

Methods: A multidisciplinary group, including community partners, formulated objectives in accordance with the Homeland Security Exercise and Evaluation Program and defined a scenario. A date to conduct the exercise was chosen on the basis of the expected completion of a large section of the new emergency department but prior to its opening for patient care.

Results: The exercise highlighted several strengths, but more importantly, illuminated areas for improvement that might otherwise have been missed in tabletop exercises and smaller-scale drills. Educational opportunities to improve functional skills and protocol were recognized.

Conclusion: Conducting a full-scale functional exercise of an active shooter in a newly constructed emergency department prior to opening for patient care provided valuable insight into areas for improvement while minimizing the impact such an exercise can have on daily operations. Should a similar opportunity arise as a result of new facilities being developed or renovations and maintenance requiring temporary closure, we advise hospitals to consider planning an exercise in the area prior to reopening for patient care. (*Disaster Med Public Health Preparedness*. 2017;page 1 of 4)

Key Words: disaster planning, mass casualty incidents, active shooter, hospital emergency preparedness

The incidence and severity of mass shootings in the United States and the world has increased in the past decade. Active shooter incidents are defined as those where an individual is "actively engaged in killing or attempting to kill people in a confined and populated area."[1] Active shooter incidents in the United States are becoming more common, with the incidence increasing over the past decade.[2] In January 2014 the Healthcare and Public Health Sector Coordinating Council of the Federal Bureau of Investigation published guidelines for health care facilities to help mitigate this potential threat.[3] Active shooters in the health care facility setting pose a unique risk given the vulnerable population, hazardous materials, and equipment present. Within the health care facility, the emergency department (ED) is especially vulnerable to active shooters because it is a major entry portal to the hospital, allowing access to people from outside, arriving by emergency medical services and from other areas of the hospital. Targeting the ED would threaten staff, patients, and infrastructure as well as potentially delay care of casualties. In one study, it was found that ED shootings accounted for roughly one-third of health care facility shootings.[4]

WellSpan York Hospital is a Level 1 trauma center, serving the areas surrounding York and Adams counties in the south-central Pennsylvania region. The ED of the hospital currently sees over 80,000 visits per year, a number that has been continually increasing in volume. To help accommodate this growth, a larger ED is currently being constructed. In 2015, the WellSpan York Hospital's hazard vulnerability analysis (HVA) determined that an active shooter was its largest vulnerability. Although all hospital staff receive emergency preparedness training and protocols to respond to violence in the workplace, as well as mass casualty triage techniques during orientation and through yearly online modules, the emergency management committee felt that the lack of functional exercises in active shooter threats reduced the hospital's resilience to such an incident. To help mitigate this potential disaster, before the newly constructed ED was opened for patient care, a full-scale functional exercise was developed and executed in conjunction with community partners, utilizing an active shooter scenario. This exercise allowed for a unique opportunity of conducting a full-scale functional exercise in the ED without disrupting ongoing patient care.

METHODS

In response to an "active shooter" event being a top priority on the hospital HVA, several months prior to the exercise, a multidisciplinary group including members from emergency management, the ED, public information, safety and security, and spiritual and mental health began formulating objectives to evaluate in accordance with the Homeland Security Exercise and Evaluation Program. The determined objectives evaluated included the following: to evaluate the ability of the ED and security staff to communicate with each other as well as with local police agencies during an armed intruder event, to test the ability of the ED and security staff to recognize and respond to an armed intruder by following the pre-defined emergency operations plan, to evaluate the ED's response to an internal mass casualty incident, and to evaluate the ability to evacuate to an alternate care site. Following the development of these objectives, in conjunction with local community responders, including law enforcement, the scenario was further defined. Approval from hospital administration and risk management departments was obtained for the scope of the exercise as well as to utilize blank cartridges for additional realism. Communication was initiated with staff to make them aware of the exercise, as were plans for signage and additional security to ensure that patients were aware of the simulation and remained safe during the entire process. A date to conduct the exercise was chosen based on the expected completion of a large section of the new ED but prior to its opening for patient care.

During the exercise, a simulated active shooter, played by a police officer from a different division than the responding local law enforcement agency, was equipped with blank cartridges and placed in the ED along with staff and simulated patients. After the exercise was initiated and the simulated perpetrator began his attack, local police departments were contacted through both 911 and panic alarms, which also notified hospital operators to place a plain-English emergency notification on hospital monitors and contact supervisors to initiate the hospital emergency operations plan. Evaluators, participants, closed circuit video, and portable video cameras provided feedback for our debriefing. All participants signed waivers for the video footage to be used for training, educational, and academic purposes.

RESULTS

The exercise highlighted several strengths, but more importantly, illuminated areas for improvement that might otherwise have been missed in tabletop exercises and smaller-scale drills. A summary of major strengths and weaknesses noted by evaluators for each objective is included in Table 1. In each objective, it was noted that staff attempted the initial steps in all objectives, but evaluators noted an obvious lack of experience in conducting a mass casualty triage. Law enforcement officers were noted to administer to the immediate threat appropriately and to interface with hospital security well, but did not communicate efficiently with ED staff to signal when an area was secure so that evacuation and treatment could commence. In addition, another interesting finding was that because the new ED was constructed to minimize noise, some staff did not hear the firearm discharge at first. After identifying multiple areas for improvement, an educational course targeting all personnel was developed and distributed. Feedback to law enforcement was also given regarding the need for improved communication with staff following an incident. These efforts will be examined further in future exercises. In addition, to aid in communication with staff, the hospital improved its mass notification capabilities with additional automated software that can communicate emergency situations by means of phone calls, text messaging, and e-mails.

DISCUSSION

With the increasing threat of violence in various forms, it is imperative that hospitals provide training to help protect staff, patients, and infrastructure. Exercises and drills can provide a means to reinforce knowledge and skill sets while identifying areas for improvement. One of the largest challenges to conducting such an intense, realistic exercise is the impact it might have on daily operations. It is noted that realistic training conditions participants toward improved response.[5] As a result, the best training is often at odds with regular obligations. Conducting such training during periods when facilities are already closed to patient care, such as during construction, renovation, and maintenance periods, provides an excellent opportunity to minimize impact on operations while still achieving educational objectives. It is noted that not every institution has the opportunity to utilize renovations and new construction periods to conduct preparedness exercises. To limit impact on patient care, it is recommended to identify periods of low patient volume or to conduct drills in alternative areas to simulate the location. While these methods may not be ideal and care must be taken to examine the limitations and differences compared to a full-scale exercise in the proper location, such exercises may still be of great benefit in preparing and training staff.

Conducting a full-scale functional exercise allowed for the most realistic simulation of an active shooter in the ED. This prepared staff for an actual event far more than a tabletop exercise might have and highlighted areas for improvement that might otherwise have been missed. For example, although staff did appropriately call 911 and activate panic alarms, some staff were unfamiliar with the location and types of the new alarm systems in the recently constructed ED. Team leaders may have been educated on disaster response and triage and responded well to previous tabletop drill events, but under the pressure of a simulated active exercise, communications quickly broke down and several aberrancies in protocol were noted. While some discrepancies, such as deviating from the "run, hide, fight" or similar methodologies (staff would try to locate the active

TABLE 1

Major Strengths and Weaknesses Noted by Evaluators for Each Objective[a]

Objective	Strengths	Weaknesses
Evaluate the ability of ED and security staff to communicate with each other as well as with local police agencies during an armed intruder event	• Staff appropriately called 911 and used panic buttons to alert law enforcement	• Staff on site did not effectively communicate with police, area commander, or incident commander • Some staff were unfamiliar with the location and types of panic alarms in new ED
Test the ability of ED and security staff to recognize and respond to an armed intruder by following the predefined emergency operations plan	• Staff appropriately called 911 and used panic buttons to alert law enforcement • Some clinical staff fled if possible; others hid in locked rooms if unable to flee. One staff member constructed a barricade within a patient care room; this slowed aggressor enough to allow for escape in opposite direction • Security staff met responding police at entrance, provided assistance to police in accessing and navigating the ED	• Some staff hiding behind locked doors continually opened door to look for shooter
Evaluate the ED's response to an internal mass casualty incident	• Team Leader initiated role assignment	• Team leader did not communicate well, did not provide clear directions/expectations to the staff appointed to roles • Difficult to identify Team Leader or other leadership positions during events • Team Leader struggled with setting up disaster triage mode • No casualty assembly point or evacuation point was identified • No coordination of communication or care between Team Leader and attending physician • Confusion and uncertainty among staff on the START Triage process
Evaluate the ability to evacuate to an alternate care site	• Staff began establishing triage areas (Red/Green/Yellow) after no immediate communication to do so	• Patient care was initiated where the patient was found • Took significant prompting to get Team Leader to work through the disaster workflow • Staff unaware of the location of the ED disaster carts or what the capabilities of these carts are

[a]Abbreviation: ED, emergency department.

shooter by opening doors), can be attributed to the inherent artificial status of a drill no matter how realistic, these findings point to opportunities for increased education, reinforcing knowledge and skills.

In addition, while the hospital has a plan with equipment along with access set aside for law enforcement and communication between hospital security and law enforcement was excellent, additional communication between those groups and clinical staff had room for improvement. This finding is consistent with the rationale for recommendations for multidisciplinary exercises including local community partners.[1]

CONCLUSION

Conducting a full-scale functional exercise of an active shooter in a newly constructed ED prior to opening for patient care provided unique and valuable insight into areas for improvement in the emergency operations plan. It was a valuable opportunity to perform such an exercise without impacting patient care and allowed the local community partners to evaluate their response and communication with the hospital should such an event occur. Should a similar opportunity arise for other entities, as the result of developing new facilities or renovations and maintenance requiring temporary closure, we advise hospitals to consider planning an exercise in the area prior to reopening for patient care.

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Active Shooter Take-Home Course

Drill Exercise Questions

1. Why was the decision made to do a real-life as opposed to table-top drill?

    A. Security thought it would be more exciting.
    B. It was required by the Joint Commission.
    C. Lack of real-life exercises threatened hospital's resilience.

2. Which of the following include problems uncovered by the drill?

    A. Confusion on start triage, poor team leader communication, unaware of panic alarm locations.
    B. Poor leader communication, security unclear on role, staffing looking from behind doors.
    C. Unaware of location of disaster carts, poor communication with police, too slow to respond.

3. "Exercises and drills can provide a means to reinforce knowledge and skill sets while identifying areas for improvement."

___ True ___ False

Test/Preventing and Mitigating Active Shooter Incidents in Healthcare

1. Which of the following **Are Not** risk factors associated with the growing number of active shooter incidents in healthcare?

A. Widespread domestic violence/abuse.
B. Ideological extremists
C. Patient and family frustration over care.
D. Poor staffing

2. What is the problem with the standard advice to Run, Hide, Fight during active shooter incidents?

A. If people had their own guns it would be not be necessary
B. When you run the police can mistake you for an assailant
C. It can conflict with a nurse's moral and legal obligation to patients

3. Which is the most common location in a hospital for active shooter incidents to take place?

A. Administration offices
B. Pharmacy
C. Emergency department
D. Psych/behavioral health

4. In the hierarchy of hazard controls, what is the best possible control?

A. Wearing PPE
B. Replacing ineffective management staff
C. Revising policies
D. Getting rid of the hazard

5. Which of the following **Is Not** a complicating factor when active shooter incidents take place in healthcare settings?

A. The presence of hazardous materials.
B. Shortcomings in Joint Commission audits.
C. Porous entry/access
D. Disruption of patient care

6. “Unlimited access for visitors is a widespread issue of concern among nurses regarding potential active shooter incidents.”

__ True __ False

7. Threat assessment teams primary objective is to:

A. Identify and track potential violent events.
B. Develop a close working relationship with the FBI.
C. Assess all health and safety concerns.
D. Let SWAT teams know who the perpetrator is.

8. Which of the following **Was Not** a shortcoming uncovered in the practice drill in an ED?

   A. Staff frequently opened doors to look outside.
   B. Confusion over the start triage process.
   C. Police didn’t shoot the active shooter.
   D. Staff not familiar with location of panic alarms.

9. Which of the following includes the three primary means for *preventing and protecting* staff and patients from an active shooter incidents?

A. Lockdown, Alert, Shoot
B. Run, Hide, Fight
C. Assess, Plan, Drill

10. “Once the shooting is over, patient care immediately returns to normal.”

    ___ True ___ False

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Healthcare Workers at Risk: Preparing for Active Shooter Incidents

Answer Sheet

Please print legibly and verify that all information is correct.

First Name: _____ **MI:** _____ **Last Name:** _____

Street Address: _____

City: _____ **State:** _____ **Zip Code:** _____

Daytime Phone Number (include area code): _____

E-mail: _____

Facility: _____ **NYSNA Member #:** _____

For those members wishing to earn CHs/CEUs for this course, *please return completed evaluation form and answer sheets to NYSNA at the conclusion of the program.* Please print your answers in the spaces provided below. **There is only one answer for each question.** All answers are located within the course content.

1. _____
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10. _____

Please complete the course evaluation on the back.

Healthcare Workers at Risk: Preparing for Active Shooter Incidents

Course Evaluation

Please use the following scale to rate statements 1-7 below:	Poor	Fair	Good	Very Good	Excellent
1. The content fulfills the overall purpose of the course.	○	○	○	○	○
2. The content fulfills each of the course objectives.	○	○	○	○	○
3. The course subject matter is current and accurate.	○	○	○	○	○
4. The material presented is clear and understandable.	○	○	○	○	○
5. The teaching/learning method is effective.	○	○	○	○	○
6. The test is clear and the answers are appropriately covered in the course.	○	○	○	○	○
7. How would you rate this course overall?	○	○	○	○	○
8. Was this course fair, balanced, and free of commercial bias?				Yes / No (Circle One)	

9. Comments: _____

_____

10. Do you have any suggestions about how we can improve this course? _____

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Thank You!

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Extent & Causes of High Maternal Mortality Rates among Black Women—What Nurses Need to Know (1 CH/.1 CEU)

NYSNA Continuing Education

The New York State Nurses Association is accredited as a provider of continuing nursing education by the American Nurses Credentialing Center's Commission on Accreditation.
NYSNA is accredited by the International Association for Continuing Education and Training (IACET) and is authorized to issue the IACET CEU.

This course has been awarded 1.0 contact hours and 0.1 CEUs.

In order to receive contact hours/CEU participants must read the course material, complete and return the post-test answer sheet with a score of 80% or better, and submit the completed evaluation for this course. Contact hours/CEUs will be awarded for this take-home course until February 16, 2021.

NYSNA wishes to disclose that no commercial support was received.

NYSNA's program planners and presenters disclose no conflict of interest.

Purpose:

Black women experience very high maternal mortality rates, particularly in comparison to white women. CDC statistics from 2013 shows that there are considerable racial disparities in pregnancy-related mortality. 12.7 deaths per 100,000 live births for white women, 43.5 deaths per 100,000 live births for black women and 14.4 deaths per 100,000 live births for women of other races. Income and education differentials by race do not account for the extent of this difference in maternal mortality rates. This program will address what nurses need to know about the root causes of this inequity and to reflect on possible implications for nursing practice.

Course Objectives:

At the completion of this learning activity the learner will be able to:

- List three factors that contribute to high Black maternal mortality rates
- Identify two implications for nursing practice in addressing Black maternal mortality

About the Author

Desma Holcomb, MA

Desma Holcomb, the Director of Labor Education for the New York State Nurses Association (NYSNA), has 35 years' experience in the labor movement, primarily in strategic research and labor education. During the last few years of organizational transformation at NYSNA, she has overseen research on trends in healthcare economics, hospital finance, healthcare delivery by nurses, labor issues and safe staffing impact and policy. She developed and leads the member Leader Training initiative to teach hundreds of union nurses and other healthcare professionals to effectively advocate for themselves and their patients.

She received her Master's degree in Economics from the New School for Social Research in New York City and her Bachelor's degree from Princeton University. She has taught "Union Organizing Strategies" at the Joseph S. Murphy Institute for Worker Education and Labor Studies/City University of NY Graduate Center in New York City.

Ms. Holcomb and NYSNA's Labor Education team design, develop, implement and evaluate labor education programs. Together, they educate unionized RNs and healthcare professionals on hospital and healthcare economics, healthcare disparities, Safe Staffing advocacy and union member leadership skills.

Extent & Causes of High Maternal Mortality Rates among Black Women—What Nurses Need to Know

Course Activity Exam

Instructions: Complete the exam questions below by marking your answers on the answer sheet provided. Be sure to complete the evaluation form on the back of the answer sheet. **For those members wishing to earn CHs/CEU for this course, please return completed evaluation form and answer sheets to NYSNA at the conclusion of the program.**

1. Black women are how much more likely to die from pregnancy- or childbirth-related causes than white women:

    A. 22% more likely
    B. 71% more likely
    C. 150% more likely
    D. 243% more likely

2. According to a 2016 analysis of five years of NYC birth data, black college-educated mothers were more likely to suffer severe complications of pregnancy or childbirth than white women who graduated from high school.

    A. True
    B. False

3. Some social determinants of differentials in Black women's health include:

    A. Differential access to healthy food and clean drinking water
    B. Unsafe neighborhoods with poorly-performing schools
    C. Medicaid rules that provide health insurance only during pregnancy—not before or after
    D. All of the above

4. Black women are more likely to have certain chronic conditions that increase the risk of childbearing, including:

    A. Blindness
    B. Hip replacement
    C. Hypertension
    D. None of the above
    E. All of the above

5. A collection of over 200 testimonies from African-American mothers documented their feelings that healthcare providers:

    A. Devaluing and disrespecting them
    B. Did not take their self-reported pain seriously
    C. Assumed they were poor, uneducated, non-compliant or unworthy
    D. All of the above
    E. None of the above

6. What is “weathering”?

    A. Health impact of exposure to the elements
    B. How continuous stress wears away at the body
    C. How excessive exercise wears away at the joints

7. Public Health Professor Geronimus has documented how the continuous stress of dealing with racial discrimination accelerates aging at the cellular level. This can cause:

    A. Increased susceptibility to infection
    B. Early onset of hypertension and diabetes
    C. Preterm birth
    D. None of the above
    E. All of the above

8. In light of weathering, Prof. Geronimus recommends that “a black woman of any social class, as early as her mid-20s, should be attended to differently [by healthcare professionals]—with greater awareness of the potential challenges.”

    A. True
    B. False

9. Most maternal deaths happen during childbirth, so the standard practice of a single post-partum visit at least 6 weeks after delivery is adequate to prevent negative post-partum outcomes.

    A. True.
    B. False.

10. Despite greater needs for post-partum care—higher rates of C-sections, preeclampsia, peripartum cardiomyopathy and post-partum depression—Black women may be more likely to miss post-partum appointments due to:

    A. Lack of paid maternity leave for working mothers
    B. Lack of child care
    C. Experience of discrimination or disrespect during pregnancy or childbirth
    D. None of the above
    E. All of the above

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Extent & Causes of High Maternal Mortality Rates among Black Women—What Nurses Need to Know (1 CH/.1 CEU)

Answer Sheet

CODE:

Please print legibly and verify that all information is correct.

First Name: _____ **MI:** _____ **Last Name:** _____

Street Address: _____

City: _____ **State:** _____ **Zip Code:** _____

Daytime Phone Number (include area code): _____

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Extent & Causes of High Maternal Mortality Rates among Black Women—What Nurses Need to Know (1 CH/.1 CEU)

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7. How would you rate this course overall?	○	○	○	○	○
8. Was this course fair, balanced, and free of commercial bias?				Yes / No (Circle One)	

9. Comments: _____

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10. Do you have any suggestions about how we can improve this course? _____

_____

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Thank You!

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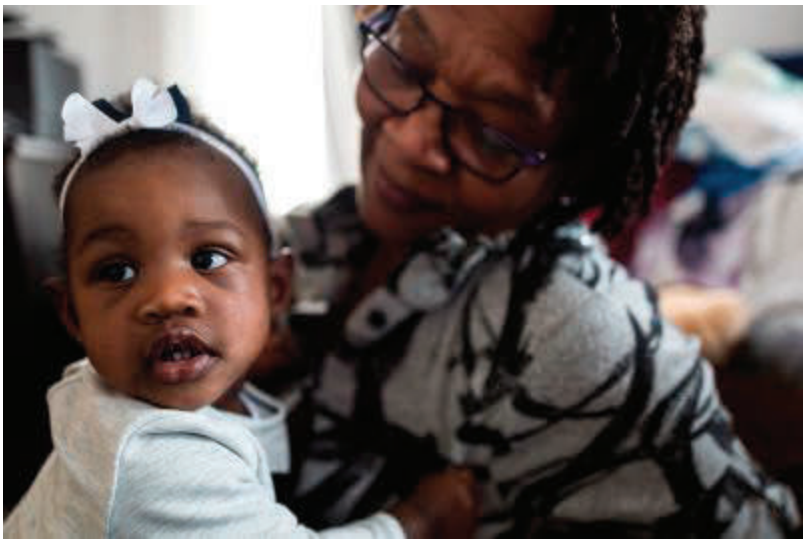

Soleil Irving “just lights up a room when she smiles,” Wanda Irving, her grandmother, says. (Sheila Pree Bright for ProPublica)

LOST MOTHERS

Nothing Protects Black Women from Dying in Pregnancy and Childbirth

Not education. Not income. Not even being an expert on racial disparities in health care.

by **Nina Martin**, ProPublica, and **Renee Montagne**, NPR
Dec. 7, 2017, 8 a.m. EST

LOST MOTHERS
Maternal Care and Preventable Deaths

This story was co-published with NPR.

On a melancholy Saturday this past February, Shalon Irving’s “village” — the friends and family she had assembled to support her as a single mother — gathered at a funeral home in a prosperous black neighborhood in southwest Atlanta to say goodbye and send her home. The afternoon light was gray but bright, flooding through tall arched windows and pouring past white columns, illuminating the flag that covered her casket. Sprays of callas and roses dotted the room like giant corsages, flanking photos from happier times: Shalon in a slinky maternity dress,

sprawled across her couch with her puppy; Shalon, sleepy-eyed and cradling the tiny head of her newborn daughter, Soleil. In one portrait Shalon wore a vibrant smile and the crisp uniform of the Commissioned Corps of the U.S. Public Health Service, where she had been a lieutenant commander. Many of the mourners were similarly attired. Shalon's father, Samuel, surveyed the rows of somber faces from the lectern. "I've never been in a room with so many doctors," he marveled. "… I've never seen so many Ph.D.s."

At 36, Shalon had been part of their elite ranks — an epidemiologist at the Centers for Disease Control and Prevention, the preeminent public health institution in the U.S. There she had focused on trying to understand how structural inequality, trauma and violence made people sick. "She wanted to expose how peoples' limited health options were leading to poor health outcomes. To kind of uncover and undo the victim blaming that sometimes happens where it's like, 'Poor people don't care about their health,'" said Rashid Njai, her mentor at the agency. Her Twitter bio declared: "I see inequity wherever it exists, call it by name, and work to eliminate it."

Much of Shalon's research had focused on how childhood experiences affect health over a lifetime. Her discovery in mid-2016 that she was pregnant with her first child had been unexpected and thrilling.

Then the unthinkable had happened. Three weeks after giving birth, Shalon had collapsed and died….

…The researcher working to eradicate disparities in health access and outcomes had become a symbol of one of the most troublesome health disparities facing black women in the U.S. today, disproportionately high rates of maternal mortality. The main federal agency seeking to understand why so many American women — especially black women — die and nearly die from complications of pregnancy and childbirth had lost one of its own. Even Shalon's many advantages — her B.A. in sociology, her two master's degrees and dual-subject Ph.D., her gold-plated insurance and rock-solid support system — had not been enough to ensure her survival….

Shalon MauRene Irving was a lieutenant commander in the uniformed ranks of the U.S. Public Health Service.(Courtesy of Wanda Irving)

In recent years, as high rates of maternal mortality in the U.S. have alarmed researchers, one statistic has been especially concerning. According to the CDC, black mothers in the U.S. die at three to four times the rate of white mothers, one of the widest of all racial disparities in women's health. Put another way, a black woman is 22 percent more likely to die from heart disease than a white woman, 71 percent more likely to perish from cervical cancer, but 243 percent more likely to die from pregnancy- or childbirth-related causes. In a national study of five medical complications that are common causes of maternal death and injury, black women were two to three times more likely to die than white women who had the same condition.

That imbalance has persisted for decades, and in some places, it continues to grow. In New York City, for example, black mothers are 12 times more likely to die than white mothers, according to the most recent data; from 2001 to 2005, their risk of death was seven times higher. Researchers say that widening gap reflects a dramatic improvement for white women but not for blacks.

The disproportionate toll on African Americans is the main reason the U.S. maternal mortality rate is so much higher than that of other affluent countries. Black expectant and new mothers in the U.S. die at about the same rate as women in countries such as Mexico and Uzbekistan, the World Health Organization estimates.

What's more, even relatively well-off black women like Shalon Irving die or nearly die at higher rates than whites. Again, New York City offers a startling example: A 2016 analysis of five years of data found that black college-educated mothers who gave birth in local hospitals were more likely to suffer severe complications of pregnancy or childbirth than white women who never graduated from high school.

The fact that someone with Shalon's social and economic advantages is at higher risk highlights how profound the inequities really are, said Raegan McDonald-Mosley, the chief medical officer for Planned Parenthood Federation of America, who met her in graduate school at Johns Hopkins University and was one of her closest friends. "It tells you that you can't educate your way out of this problem. You can't health-care-access your way out of this problem. There's something inherently wrong with the system that's not valuing the lives of black women equally to white women."

For much of American history, these types of disparities were largely blamed on blacks' supposed innate susceptibility to illness — their "mass of imperfections," as one doctor wrote in 1903 — and their own behavior. But now many social scientists and medical researchers agree, the problem isn't race but racism.

The systemic problems start with the type of social inequities that Shalon studied — differential access to healthy food and clean drinking water, safe neighborhoods and good schools, decent jobs and reliable transportation. Black women are more likely to be uninsured outside of pregnancy, when Medicaid kicks in, and thus more likely to start prenatal care later and to lose coverage in the postpartum period. They are more likely to have chronic conditions such as obesity, diabetes, and hypertension that make having a baby more dangerous. The hospitals where they give birth are often the products of historical segregation, lower in quality than those where white mothers deliver, with significantly higher rates of life-threatening complications.

Looking over Shalon's medical records, her friend Raegan McDonald-Mosley saw many missed opportunities "at multiple parts of the health care system." (Ariel Zambelich for ProPublica)

Those problems are amplified by unconscious biases that are embedded throughout the medical system, affecting quality of care in stark and subtle ways. In the more than 200 stories of African-American mothers that ProPublica and NPR have collected over the past year, the feeling of being devalued and disrespected by medical providers was a constant theme. The young Florida mother-to-be whose breathing problems were blamed on obesity when in fact her lungs were filling with fluid and her heart was failing. The Arizona mother whose anesthesiologist assumed she smoked marijuana because of the way she did her hair. The Chicago-area businesswoman with a high-risk pregnancy who was so upset at her doctor's attitude that she changed OB-GYNs in her seventh month, only to suffer a fatal postpartum stroke.

Over and over, black women told of medical providers who equated being African American with being poor, uneducated, noncompliant and unworthy. "Sometimes you just know in your bones when someone feels contempt for you based on your race," said one Brooklyn woman who took to bringing her white husband or in-laws to every prenatal visit.

Hakima Tafunzi Payne, a mother of nine in Kansas City, Missouri, who used to be a labor-and-delivery nurse and still attends births as a student midwife, has seen this cultural divide as both patient and caregiver. "The nursing culture is white, middle-class, and female, so is largely built around that identity. Anything that doesn't fit that identity is suspect," she said. Payne, who is also a nurse educator lecturing on unconscious bias for professional organizations, recalled "the conversations that took place behind the nurse's station that just made assumptions

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But it's the discrimination that black women experience in the rest of their lives — the double-whammy of race and gender — that may ultimately be the most significant factor in poor maternal outcomes. An expanding field of research shows that the stress of being a black woman in American society can take a significant physical toll during pregnancy and childbirth.

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"It's chronic stress that just happens all the time — there is never a period where there's rest from it, it's everywhere, it's in the air, it's just affecting everything," said Fleda Mask Jackson, an Atlanta researcher and member of the Black Mamas Matter Alliance who studies disparities in birth outcomes.

It's a type of stress from which education and class provide no protection. "When you interview these doctors and lawyers and business executives, when you interview African-American college graduates, it's not like their lives have been a

walk in the park," said Michael Lu, a longtime disparities researcher and former head of the Maternal and Child Health Bureau of the Health Resources and Services Administration, the main federal agency funding programs for mothers and infants. "It's the experience of having to work harder than anybody else just to get equal pay and equal respect. It's being followed around when you're shopping at a nice store, or being stopped by the police when you're driving in a nice neighborhood."

Arline Geronimus, a professor at the University of Michigan School of Public Health, coined the term "weathering" for how this continuous stress wears away at the body. Weathering "causes a lot of different health vulnerabilities and increases susceptibility to infection," she said, "but also early onset of chronic diseases, in particular, hypertension and diabetes" — conditions that disproportionately affect blacks at much younger ages than whites. It accelerates aging at the cellular level; in a 2010 study, Geronimus and colleagues found that the telomeres (chromosomal markers of aging) of black women in their 40s and 50s appeared 7 1/2 years older on average than those of whites.

Weathering can have particularly serious repercussions in pregnancy and childbirth, the most physiologically complex time in a woman's life. Stress has been linked to one of the most common and consequential pregnancy complications, preterm birth. Black women are 49 percent more likely than whites to deliver prematurely (and, closely related, black infants are twice as likely as white babies to die before their first birthday). Here again, income and education aren't protective.

The effects on the mother's health may also be far-reaching. Maternal age is an important risk factor for many severe pregnancy-related complications, as well as for chronic diseases that can affect pregnancy, like hypertension. "As women get older, birth outcomes get worse," Lu said. "If that happens in the 40s for white women, it actually starts to happen for African-American women in their 30s."

This means that for black women, the risks for pregnancy likely start at an earlier age than many clinicians — and women— realize, and the effects on their bodies may be much greater than for white women. This doesn't mean that pregnancy should be thought of as inherently scary or dangerous for black women (or anyone). It does mean, in Geronimus' view, that "a black woman of any social class, as early as her mid-20s, should be attended to differently" — with greater awareness of the potential challenges ahead.

That's a paradigm shift that professional organizations and providers have barely begun to wrap their heads around. "There may be individual doctors or hospitals that are doing it [accounting for the higher risk of black women], but ... there's not

much of that going on," Lu said. Should doctors and clinicians be taking into consideration this added layer of vulnerability?

"Yeah," Lu said. "I truly think they should."…

…In 2014, when Shalon was 34, medical problems forced the issue. For years she'd been suffering from uterine fibroids — non-malignant tumors that affect up to 80 percent of black women, leading to heavy menstrual bleeding, anemia and pelvic pain. No one knows what causes fibroids or why blacks are so susceptible. What is known is that the tumors can interfere with fertility — indeed, black women are nearly twice as likely to have infertility problems as whites, and when they undergo treatment, there's much less likelihood that the treatments will succeed. Surgery bought her a little time, but her OB-GYN urged her not to delay getting pregnant much longer….

…Until recently, much of the discussion about maternal mortality has focused on pregnancy and childbirth. But according to the most recent CDC data, more than half of maternal deaths occur in the postpartum period, and one-third happen seven or more days after delivery. For American women in general, postpartum care can be dangerously inadequate — often no more than a single appointment four to six weeks after going home. "If you've had a cesarean delivery, if you've had preeclampsia, if you've had gestational diabetes or diabetes, if you go home on an anticoagulant — all those women need to be seen significantly sooner than six weeks," said Haywood Brown, a professor at Duke University medical school. Brown has made reforming postpartum care one of his main initiatives as president of the American Congress of Obstetricians and Gynecologists.
The dangers of sporadic postpartum care may be particularly great for black mothers. African Americans have higher rates of C-section and are more than twice as likely to be readmitted to the hospital in the month following the surgery. They have disproportionate rates of preeclampsia and peripartum cardiomyopathy (a type of heart failure), two leading killers in the days and weeks after delivery. They're twice as likely as white women to have postpartum depression, which contributes to poor outcomes, but they are much less likely to receive mental health treatment. If they experience discrimination or disrespect during pregnancy or childbirth, they may be more likely to skip postpartum visits to check on their own health (they do keep pediatrician appointments for their babies). Lack of paid maternity leave and childcare can create additional hurdles. In one study published earlier this year, two-thirds of low-income black women never made it to their doctor visit.

Meanwhile, many providers wrongly assume that the risks end when the baby is born — and that women who came through pregnancy and delivery without problems will stay healthy. In the case of black women, providers may not understand their true biological risks or evaluate those risks in a big-picture way. "The maternal experience isn't over right at delivery. All of the due diligence that gets applied during the prenatal period needs to continue into the postpartum period," said Eleni Tsigas, executive director of the Preeclampsia Foundation.

It's not just doctors and nurses who need to think differently. Like a lot of expectant mothers, Shalon had an elaborate plan for how she wanted to give birth, even including what she wanted her surgical team to talk about (nothing political) and who would announce the baby's gender (her mother, not a doctor or nurse). But like most pregnant women, she didn't have a postpartum care plan for herself. "It was just trusting in the system that things were gonna go okay," Wanda said. "And that if something came up, she'd be able to handle it."

The birth was "a beautiful time," Wanda said. …Then at home, "things got real," Pryor said. "It was Shalon and her mom trying to figure things out, and the late nights, and trying to get baby on schedule. Shalon was very honest. She told me, 'Friend, this is hard.'"

C-sections have much higher complication rates than vaginal births. In Shalon's case, the trouble — a painful lump on her incision — emerged a few days after she went home. The first doctor she saw, on Jan. 12, said it was nothing, but as she and her mother were leaving his office, they ran into her longtime OB-GYN, Elizabeth Collins. Collins took a look and diagnosed a hematoma — blood trapped in layers of healing skin, something that happens in about 1 percent of C-sections. The OB-GYN drained the "fluctuant mass" (as her notes described it), and "copious bloody non-purulent material" poured out from the one-inch incision. Collins also arranged for a visiting nurse to come by the house every other day to change the dressing. Collins didn't respond to a request for comment.

Over the next two weeks, Shalon's records show three more visits to Emory and two nursing visits at home. She feared that the incision wasn't healing fast enough, perhaps because the blood thinners she was taking to prevent an embolism — another C-section risk — were hampering coagulation. But a wound specialist said everything looked OK. Shalon was worried about Soleil, too: Breastfeeding was harder than expected, and she'd stopped taking narcotic painkillers because she thought they were making the baby groggy. But less powerful painkillers weren't working; between the pain and the anxiety, she was hardly sleeping. "Patient has

poor endurance," the visiting nurse noted on Jan. 16. "Leaving the home is a TAXING and CONSIDERABLE effort."

What troubled the nurse most, though, was Shalon's blood pressure. On Jan. 16 it was 158/100, high enough to raise concerns about postpartum preeclampsia, which can lead to seizures and stroke. But Shalon didn't have other symptoms, such as headache or blurred vision. She made an appointment to see the OB-GYN for the next day, then ended up being too overwhelmed to go, the visiting nurse noted on Jan. 18. In that same record, the nurse wrote that Shalon had to change the dressing on her wound "sometimes several times a day due to large amounts of red drainage. This is adding to her stress as a new mom." Her pain was 5 on a scale of 10, preventing her from "sleeping/relaxing." Overall, Shalon told the nurse, "it just doesn't feel right." When the nurse measured her blood pressure on the cuff Shalon kept at home, the reading was 158/112. On the nurse's equipment, the reading was 174/118.

"We provide caring and compassionate care to all of our patients," the Visiting Nurse Health System said in an email. "She was in our care for less than four days but we gave the very best care we could."

Under current ACOG guidelines, blood pressure readings that high should trigger more aggressive action, such as an immediate trip to the doctor for further evaluation, possibly medication and more careful monitoring. A history of hypertension and multiple other risks should raise more red flags, Tsigas said. "We need to look holistically at the risk factors irrespective of whether or not she had a diagnosis of preeclampsia," she said. "If somebody has a whole plateful of risk factors, how are you treating them differently?" High blood pressure in the postpartum period should always be considered an emergency, she said.
"It would have made sense to admit her to the hospital for a complete work-up, including chest xray, an echocardiogram to evaluate for heart failure, and titration of her medication (both pain meds and hypertension meds) to sort out what she needed to feel OK and get [her] blood pressure out of the severe range," wrote one doctor, a leading expert on postpartum care, who agreed to look at Shalon's records at ProPublica's request, but asked not to be identified. "Education on signs / symptoms of stroke seems insufficient — we don't want to wait until someone is having a stroke to get their BP treated. A next-day follow-up for a BP of 174/118 seems questionable for a postpartum woman. Same-day assessment in her provider's office, or in the ER, would have been very much within the bounds of common practice."

Instead, Shalon was given an appointment for the following day, Jan. 19, with an OB-GYN at Women's Center at Emory St. Joseph's, which handled her primary care. By then, Shalon's blood pressure had fallen, and there were "no symptoms concerning for postpartum [preeclampsia]," the doctor wrote in his notes. He wrote that Shalon was healing "appropriately" and thought her jumps in blood pressure were likely related to "poor pain control."…

On the morning of Tuesday, Jan. 24, Shalon took a selfie with her father, who'd been visiting for a week, then sent him to the airport to catch a flight back to Portland. Towards noon, she and Wanda and the baby drove to the Emory Women's Center one more time. This time, Shalon saw a nurse practitioner. "We said, 'Look, there's something wrong here, she's not feeling well,'" Wanda recalled. "'One leg is larger than the other, she's still gaining weight'— nine pounds in 10 days — 'the blood pressure is still up, there's gotta be something wrong."

The nurse's records confirmed Shalon had swelling in both legs, with more swelling in the right one. She noted that Shalon had complained of "some mild headaches" and her blood pressure was back up to 163/99, but she didn't have other preeclampsia signs, like blurred vision. She checked the incision — "warm dry no [sign/symptom] of infection" — and noted Shalon's mental state ("cooperative, appropriate mood & affect, normal judgment"). She ordered an ultrasound to check the legs for blood clots, as well as preeclampsia screening.

Both tests came back negative. As Wanda remembers it, Shalon was insistent: "There *is* something wrong, I know my body. I don't feel well, my legs are swollen, I'm gaining weight. I'm not voiding. I'm drinking a lot of water, but I'm retaining the water." Before sending Shalon home, the nurse gave her a prescription for the blood pressure medication nifedipine, which is often used to treat pregnancy-related hypertension….

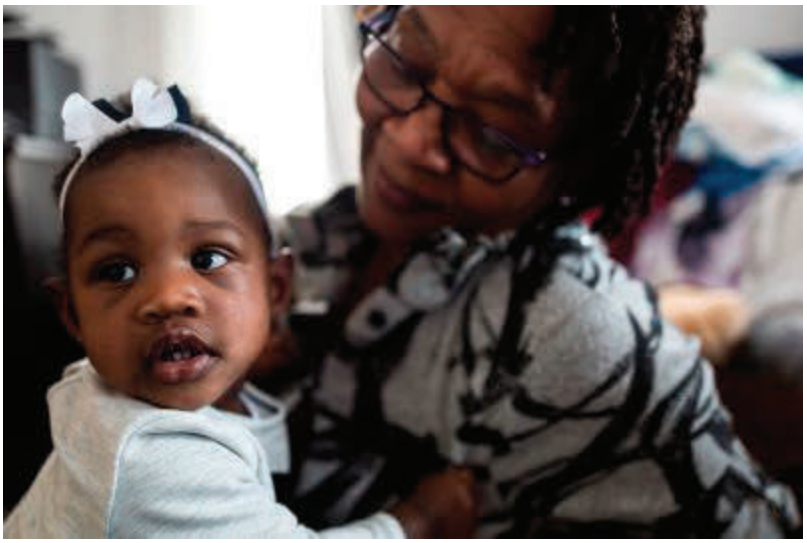
Shalon and Wanda stopped at the pharmacy, then decided to go out to dinner with the baby. While they ate, they talked about a trip Shalon had planned for the three of them to take in just a few weeks. Ever since Sam III had died, Wanda and Shalon made a point of traveling someplace special on painful anniversaries. To mark his 40th birthday and the eighth anniversary of his death, Shalon had gotten the idea of going to Dubai. ("It's cheap," Shalon had told Wanda. "The money is worth so much more there. It's supposed to be beautiful.") She had long ago purchased their tickets and ordered the baby's passport. Now Wanda was worried — would she be feeling well enough to make such a big trip with an infant? Shalon

wasn't willing to give up hope just yet. Wanda recalls her saying, "I'll be fine, I'll be fine."

They got home and sat in Shalon's bedroom for a while, laughing and playing with the baby. Around 8:30 p.m., Shalon suddenly declared, "I just don't know, Mom, I just don't feel well." She took one of the blood pressure pills. An hour later, while she and Wanda were chatting, Shalon clutched her heart, gasped and passed out.

Paramedics arrived to find Shalon on the floor near the foot of her bed "pulseless and not breathing…" They tried to stabilize her, then rushed her to Atlanta's Northside Hospital, just a couple of miles from her home. In the emergency room, doctors discovered that the breathing tube had been "incorrectly placed," according to the ambulance service report — into her esophagus instead of her lungs. She never regained consciousness. Four days later, on Jan. 28, Wanda and Samuel withdrew life support and she died….

Full story: https://www.propublica.org/article/nothing-protects-black-women-from-dying-in-pregnancy-and-childbirth



Soleil Irving “just lights up a room when she smiles,” Wanda Irving, her grandmother, says. (Sheila Pree Bright for ProPublica)

LOST MOTHERS

Nothing Protects Black Women from Dying in Pregnancy and Childbirth

Not education. Not income. Not even being an expert on racial disparities in health care.

by **Nina Martin**, ProPublica, and **Renee Montagne**, NPR
Dec. 7, 2017, 8 a.m. EST

LOST MOTHERS
Maternal Care and Preventable Deaths

This story was co-published with NPR.

On a melancholy Saturday this past February, Shalon Irving’s “village” — the friends and family she had assembled to support her as a single mother — gathered at a funeral home in a prosperous black neighborhood in southwest Atlanta to say goodbye and send her home. The afternoon light was gray but bright, flooding through tall arched windows and pouring past white columns, illuminating the flag that

covered her casket. Sprays of callas and roses dotted the room like giant corsages, flanking photos from happier times: Shalon in a slinky maternity dress, sprawled across her couch with her puppy; Shalon, sleepy-eyed and cradling the tiny head of her newborn daughter, Soleil. In one portrait Shalon wore a vibrant smile and the crisp uniform of the Commissioned Corps of the U.S. Public Health Service, where she had been a lieutenant commander. Many of the mourners were similarly attired. Shalon's father, Samuel, surveyed the rows of somber faces from the lectern. "I've never been in a room with so many doctors," he marveled. "… I've never seen so many Ph.D.s."

At 36, Shalon had been part of their elite ranks — an epidemiologist at the Centers for Disease Control and Prevention, the preeminent public health institution in the U.S. There she had focused on trying to understand how structural inequality, trauma and violence made people sick. "She wanted to expose how peoples' limited health options were leading to poor health outcomes. To kind of uncover and undo the victim blaming that sometimes happens where it's like, 'Poor people don't care about their health,'" said Rashid Njai, her mentor at the agency. Her Twitter bio declared: "I see inequity wherever it exists, call it by name, and work to eliminate it."

Much of Shalon's research had focused on how childhood experiences affect health over a lifetime. Her discovery in mid-2016 that she was pregnant with her first child had been unexpected and thrilling.

Then the unthinkable had happened. Three weeks after giving birth, Shalon had collapsed and died.

The sadness in the chapel was crushing. Shalon's long-divorced parents had already buried both their sons; she had been their last remaining child. Wanda Irving had been especially close to her daughter —role model, traveling companion, emotional touchstone. She sat in the front row in a black suit and veiled hat, her face a portrait of unfathomable grief. Sometimes she held Soleil, fussing with her pink blanket. Sometimes Samuel held her, or one of Shalon's friends.

A few of Shalon's villagers rose to pay tribute; others sat quietly, poring through their funeral programs. Daniel Sellers, Shalon's cousin from Ohio and the baby's godfather, spoke for all of them when he promised Wanda that she would not have to raise her only grandchild alone. "People say to me, 'She won't know her mother.' That's not true," Sellers said. "Her mother is in each and every one of you, each and every one of us. … This child is a gift to us. When you remember this child, you remember the love that God has pushed down through her for all of us. Soleil is our gift."

Underneath the numb despair was a profound sense of failure — and an acute understanding of what Shalon's death represented. The researcher working to eradicate disparities in health access and outcomes had become a symbol of one of the most troublesome health disparities facing black women in the U.S. today, disproportionately high rates of maternal mortality. The main federal agency seeking to understand why so many American women — especially black women — die and nearly die from complications of pregnancy and childbirth had lost one of its own. Even Shalon's many advantages — her B.A. in sociology, her two master's degrees and dual-subject Ph.D., her gold-plated insurance and rock-solid support system — had not been enough to ensure her survival. If a village this powerful hadn't been able to protect her, was any black woman safe?

The memorial service drew to a close, the bugle strains of "Taps" as plaintive as a howl. Two members of the U.S. Honor Guard removed the flag from Shalon's coffin and held it aloft. Then they folded it into a precise triangle small enough for Wanda and Samuel to hold next to their hearts.

Shalon MauRene Irving was a lieutenant commander in the uniformed ranks of the U.S. Public Health Service.(Courtesy of Wanda Irving)

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That imbalance has persisted for decades, and in some places, it continues to grow. In New York City, for example, black mothers are 12 times more likely to die than white mothers, according to the most recent data; from 2001 to 2005, their risk of death was seven times higher. Researchers say that widening gap reflects a dramatic improvement for white women but not for blacks.

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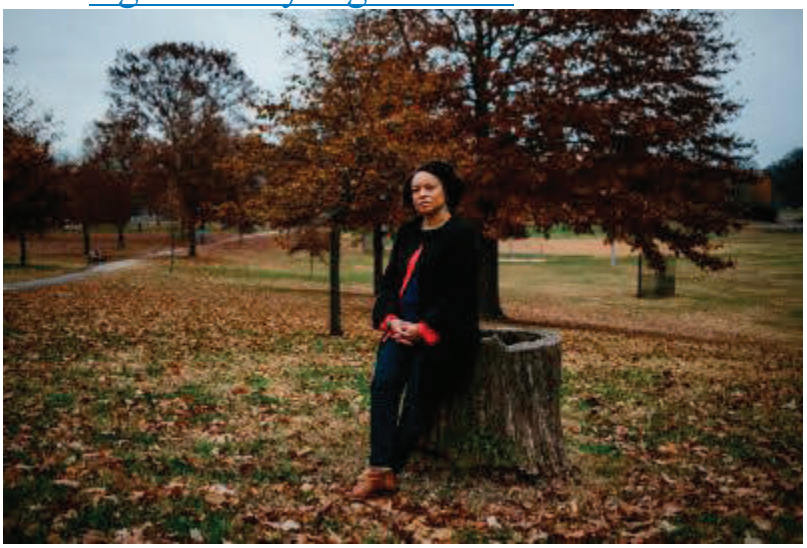

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The U.S. medical system is still haunted by slavery.

"It's chronic stress that just happens all the time — there is never a period where there's rest from it, it's everywhere, it's in the air, it's just affecting everything," said Fleda Mask Jackson, an Atlanta researcher and member of the Black Mamas Matter Alliance who studies disparities in birth outcomes.

It's a type of stress from which education and class provide no protection. "When you interview these doctors and lawyers and business executives, when you interview African-American college graduates, it's not like their lives have been a walk in the park," said Michael Lu, a longtime disparities researcher and former head of the Maternal and Child Health Bureau of the Health Resources and Services Administration, the main federal agency funding programs for mothers and infants. "It's the experience of having to work harder than anybody else just to get equal pay and equal respect. It's being followed around

when you're shopping at a nice store, or being stopped by the police when you're driving in a nice neighborhood."

Arline Geronimus, a professor at the University of Michigan School of Public Health, coined the term "weathering" for how this continuous stress wears away at the body. Weathering "causes a lot of different health vulnerabilities and increases susceptibility to infection," she said, "but also early onset of chronic diseases, in particular, hypertension and diabetes" — conditions that disproportionately affect blacks at much younger ages than whites. It accelerates aging at the cellular level; in a 2010 study, Geronimus and colleagues found that the telomeres (chromosomal markers of aging) of black women in their 40s and 50s appeared 7 1/2 years older on average than those of whites.

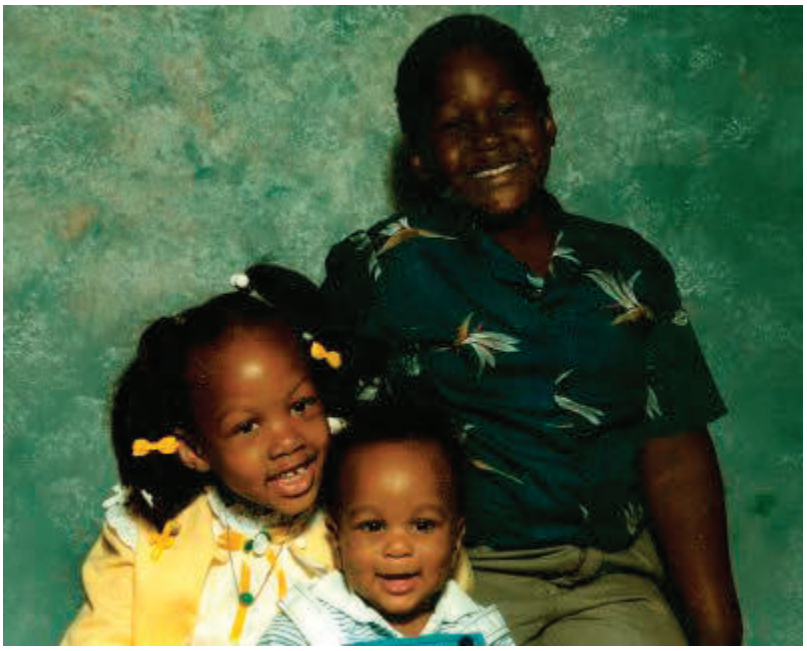
Weathering can have particularly serious repercussions in pregnancy and childbirth, the most physiologically complex time in a woman's life. Stress has been linked to one of the most common and consequential pregnancy complications, preterm birth. Black women are 49 percent more likely than whites to deliver prematurely (and, closely related, black infants are twice as likely as white babies to die before their first birthday). Here again, income and education aren't protective.

The effects on the mother's health may also be far-reaching. Maternal age is an important risk factor for many severe pregnancy-related complications, as well as for chronic diseases that can affect pregnancy, like hypertension. "As women get older, birth outcomes get worse," Lu said. "If that happens in the 40s for white women, it actually starts to happen for African-American women in their 30s."

This means that for black women, the risks for pregnancy likely start at an earlier age than many clinicians — and women— realize, and the effects on their bodies may be much greater than for white women. This doesn't mean that pregnancy should be thought of as inherently scary or dangerous for black women (or anyone). It does mean, in Geronimus' view, that "a black woman of any social class, as early as her mid-20s, should be attended to differently" — with greater awareness of the potential challenges ahead.

That's a paradigm shift that professional organizations and providers have barely begun to wrap their heads around. "There may be individual doctors or hospitals that are doing it [accounting for the higher risk of black women], but ... there's not much of that going on," Lu said. Should doctors and clinicians be taking into consideration this added layer of vulnerability?

"Yeah," Lu said. "I truly think they should."



Shalon, her baby brother Simone and her older brother Sam III, in a photo taken in the mid-1980s (Courtesy of Wanda Irving)

Shalon Irving's history is almost a textbook example of the kinds of strains and stresses that make high-achieving black women vulnerable. The child of two Dartmouth graduates, she grew up in Portland, Oregon, where her father's father was pastor of a black church. Even in its current liberal incarnation, Portland is one of the whitest large cities in the U.S.

Thirty years ago, Portland was a much more uncomfortable place to be black. African-American life there was often characterized by social isolation, which Geronimus' research suggests can be especially stressful. Samuel Irving spent years working as a railroad engineer; he got a law degree and later ran a city agency, but felt his prospects were still constrained by his race. Wanda held various jobs in marketing and communications, including at the U.S. Forest Service. In elementary school, Shalon was sometimes the only African-American kid in her class. "There were many mornings where she would stand outside banging on the door wanting to come back into the house because she didn't want to go to school," her mother recently recalled.

Shalon's strategy for fitting in was to be smarter than everyone else. She read voraciously, wrote a column for a black-owned weekly newspaper and skipped a grade. Books and writing helped her cope with trauma and sorrow — first the death of her 20-month-old brother Simone in a car accident when she was six, then the fracturing of her parents' marriage, then the diagnosis of her beloved older brother, Sam III, with a virulent form of early-onset multiple sclerosis when he was 17. Amid all the family troubles, Shalon was funny and driven, with a fierce sense of loyalty and "a moral compass that was amazing," her mother said. She was also overweight and often anxious, given to daydreaming (as she later put it) about "alternative realities where people hadn't died and things had not been lost." When it came time to go away to college, she chose the historically black Hampton University in Virginia. "She wanted to feel that nurturing environment," Wanda said. "She had had enough."

By then, Shalon had noticed that many of her relatives — her mother's mother, her aunts, her far-flung cousins — died in their 30s and 40s. Her brother, Sam III, sardonically joked that the family had a "death gene," but Shalon didn't think that was funny. "She didn't understand why there was such a disparity with other families that had all these long lives," Wanda said. Shalon nagged her father to stop smoking and her

mother to lose weight. She set an example, shedding nearly 100 pounds while managing to graduate summa cum laude. At the start of graduate school at Purdue University, she was a svelte 138 pounds, “very classy and elegant, a lot like her mom,” said Bianca Pryor, a master’s student in consumer behavior who became one of what Shalon called her cherished circle of “sister friends.”

They were all bearing the same burden. “There’s this feeling that we’re carrying the expectations of generations, the first ones trying to climb the corporate ladder, trying to climb in academe,” said Pryor, now a marketing executive in New York City. “There is this idea that we have to work twice as hard as everyone else. But there’s also, ‘I’m first-generation, I don’t know the ropes, I don’t how to use my social capital.’ There’s a bit of shame in that … this constant checking in with yourself — am I doing this right?”

Shalon set the bar especially high: She was pursuing a double Ph.D. in sociology and gerontology, focusing on themes she would return to often — the long-term effects of early childhood trauma and maltreatment, the impact of the parent-child relationship on lifelong health. She finished in under five years, once again with top honors — “one of the best writers I’ve had in my academic career,” her adviser, sociologist Kenneth Ferraro, said.

Wanda and Shalon were so close, “they were like the ‘Gilmore Girls,’” one friend said. (Courtesy of Wanda Irving)

She tried teaching, then decided to pursue a second master’s degree, this time from Johns Hopkins. She was also juggling family responsibilities. Wanda had followed Shalon around the country, earning her own master’s degree and working in nonprofit management. “They were like the ‘Gilmore Girls,’” Pryor said. In 2008, Sam III joined them in Baltimore to take part in a study on an experimental MS therapy. With his family’s support, he’d managed to finish college and run a poetry-slam nonprofit for kids. His next goal was to walk across the stage to receive his diploma instead of using his wheelchair. In February 2009, while he was doing physical rehab to regain strength in his legs, a blood

clot traveled to his lung, killing him at the age of 32. Afterward, Wanda and Shalon clung to each other more tightly than ever.

In 2011 came what Ferraro called Shalon's "change-the-world opportunity" — a consulting gig at the CDC with Michelle Obama's "Let's Move!" initiative. Soon she joined the agency's prestigious Epidemic Intelligence Service, a training program in applied epidemiology — in her case, with a focus on community health — whose members served as first responders in health emergencies. As part of the uniformed ranks of the U.S. Public Health Service, she could eventually discharge her student debt — more than $165,000 for Hopkins alone — travel, buy a house. "The permanence was very appealing," Pryor said.

What Shalon wasn't prepared for was how unfulfilled she was. After Johns Hopkins, she had worked on the frontlines helping at-risk infants, teenage girls and mothers with HIV/AIDS. She was passionate about improving food and housing security to reduce people's risk for high blood pressure and other cardiovascular problems, but felt like much of her CDC research ended up sitting on a shelf. It bothered her that she rarely met the people behind the data she was analyzing. "She might see the numbers, but I don't think she actually saw that little girl or little boy have a healthier lunch," Pryor said.

The stress and frustration triggered the old corrosive self-doubts. But gradually, Shalon saw a way out of the box. She joined the CDC's Division of Violence Prevention, refocusing on issues around trauma and domestic abuse— a mission she saw as "liberating" for African-American women, Wanda said. She started a coaching business called Inclusivity Standard to advise young people from disadvantaged backgrounds who wanted to get into college or grad school, as well as organizations seeking to become more diverse. She enlisted her mother, now working as a consultant, and Pryor to join her team. And she decided to write a self-help book, on the theory that many people in the communities she cared about couldn't afford psychotherapy or didn't trust it. "She was one of those people — one thing is just not enough,"

said her coauthor Habiba Tran, a therapist and life coach with a multicultural clientele. “One modality is just not enough. One way of [reaching people] is just not enough.”

“No words have been created to adequately capture the fear and love and excitement that I feel right now,” Shalon, shown here with her puppy Lady Day, wrote to her daughter.
(Courtesy of Wanda Irving)

Shalon couldn’t remember a time when she didn’t want to be a mother. But her romantic life had been a “20-year dating debacle,” she admitted in the manuscript of her self-help book, in part because “I am deathly scared of heartbreak and disappointment, and letting people in comes with the very real risk of both.”

In 2014, when Shalon was 34, medical problems forced the issue. For years she’d been suffering from uterine fibroids — non-malignant tumors that affect up to 80 percent of black women, leading to heavy menstrual bleeding, anemia and pelvic pain. No one knows what causes fibroids or why blacks are so susceptible. What is known is that the tumors can interfere with fertility — indeed, black women are nearly twice as likely to have infertility problems as whites, and when they undergo treatment, there’s much less likelihood that the treatments will

succeed. Surgery bought her a little time, but her OB-GYN urged her not to delay getting pregnant much longer.

Shalon had spent her adult years defying stereotypes about black women; now she wrestled with the reality that by embracing single motherhood, she could become one. The financial risk was substantial — she'd just purchased a town house in the quiet Sandy Springs area north of Atlanta, and her CDC insurance only covered artificial insemination for wives using their husbands' sperm. In Portland, no one would have blinked an eye at an unmarried professional woman having a child on her own, but in Atlanta, "there is very much a vibe there that things should happen in a certain order," Pryor said. "And Shalon was not having that at all. She was like, 'Nope, this is what it is.'"

The gamble — funded with her parents' help — ended in a series of devastating failures. In September 2015, in the midst of one unsuccessful insemination treatment, Shalon was alarmed to discover that her right arm had become swollen and hard. Doctors found a blood clot and diagnosed her with Factor V Leiden, a genetic mutation that makes blood prone to abnormal clumping. Suddenly a part of the family's medical mystery was solved. Wanda's mother had died of a pulmonary embolism, so had Sam III, so had other members of their extended family. But no one had been tested for the mutation, which is primarily associated with European ancestry. Had they known they carried it, maybe Sam's deadly blood clot could have been prevented. It was a what-if too painful to dwell on.

By April 2016, Shalon had given up. She had a new boyfriend and she was on her way to Puerto Rico to help with the CDC'S Zika response, working to prevent the spread of the virus to expectant mothers and their unborn babies. There she discovered she'd gotten pregnant by accident. Her excitement was tempered by fear that the baby might have contracted Zika, which can cause microcephaly and other birth defects. But a barrage of medical tests confirmed all was well.

More good news: A few weeks later Pryor learned she was pregnant, too. “All right,” she told Shalon, “let’s finally go after our rainbows and unicorns! Because for so long it was just dark clouds and rain.”

A worried Bianca Pryor quizzed her best friend from grad school: “Are you getting out of the house? Are you going for your walks?” (Melissa Bunni Elian for ProPublica)

In reality, Shalon’s many risk factors — including her clotting disorder, her fibroid surgery, the 36 years of wear and tear on her telomeres, her weight — boded a challenging nine months. She also had a history of high blood pressure, though it was now under control without medication. “If I was the doctor taking care of her, I'd be like, ‘Oh, this is going to be a tough one,’” her OB-GYN friend Raegan McDonald-Mosley said.

Shalon got though the physical challenges surprisingly well. Her team at Emory University, one of the premier health systems in the South, had no trouble managing her clotting disorder with the blood thinner Lovenox. They worried that scarring from the fibroid surgery could result in a rupture if her uterus stretched too much, so they scheduled a C-section at 37 weeks. At several points, Shalon’s blood pressure did spike, Wanda said, but doctors ruled out preeclampsia (pregnancy-induced hypertension) and the numbers always fell back to normal.

Wanda blamed stress. There was the painful end to Shalon's romance with her baby's father and her dashed hopes of raising their child together. There were worries about money and panic attacks about the difficulties of being a black single mother in the South in the era of Trayvon Martin and Tamir Rice. Shalon told everyone she was hoping for a girl.

Steeped in research about how social support could buffer against stress and adversity, Shalon joined online groups for single moms and assembled a stalwart community she could quickly deploy for help. "She was all about the village," Rashid Njai said. "She'd say, 'I'm making sure that when I have my baby, the village is activated and ready to go.'"

She poured more of her anxious energy into finishing the first draft of the book. She sent Tran the manuscript on Jan. 2, the day before the planned C-section, then typed one last note to her child. Boy or girl, its nickname would be Sunny, in honor of her brother Sam, her "sunshine."

"You will always be my most important accomplishment," she wrote. "No words have been created to adequately capture the fear and love and excitement that I feel right now."

Until recently, much of the discussion about maternal mortality has focused on pregnancy and childbirth. But according to the most recent CDC data, more than half of maternal deaths occur in the postpartum period, and one-third happen seven or more days after delivery. For American women in general, postpartum care can be dangerously inadequate — often no more than a single appointment four to six weeks after going home. "If you've had a cesarean delivery, if you've had preeclampsia, if you've had gestational diabetes or diabetes, if you go home on an anticoagulant — all those women need to be seen significantly sooner than six weeks," said Haywood Brown, a professor at Duke University medical school. Brown has made reforming

postpartum care one of his main initiatives as president of the American Congress of Obstetricians and Gynecologists.

The dangers of sporadic postpartum care may be particularly great for black mothers. African Americans have higher rates of C-section and are more than twice as likely to be readmitted to the hospital in the month following the surgery. They have disproportionate rates of preeclampsia and peripartum cardiomyopathy (a type of heart failure), two leading killers in the days and weeks after delivery. They're twice as likely as white women to have postpartum depression, which contributes to poor outcomes, but they are much less likely to receive mental health treatment. If they experience discrimination or disrespect during pregnancy or childbirth, they may be more likely to skip postpartum visits to check on their own health (they do keep pediatrician appointments for their babies). Lack of paid maternity leave and childcare can create additional hurdles. In one study published earlier this year, two-thirds of low-income black women never made it to their doctor visit.

Meanwhile, many providers wrongly assume that the risks end when the baby is born — and that women who came through pregnancy and delivery without problems will stay healthy. In the case of black women, providers may not understand their true biological risks or evaluate those risks in a big-picture way. "The maternal experience isn't over right at delivery. All of the due diligence that gets applied during the prenatal period needs to continue into the postpartum period," said Eleni Tsigas, executive director of the Preeclampsia Foundation.

It's not just doctors and nurses who need to think differently. Like a lot of expectant mothers, Shalon had an elaborate plan for how she wanted to give birth, even including what she wanted her surgical team to talk about (nothing political) and who would announce the baby's gender (her mother, not a doctor or nurse). But like most pregnant women, she didn't have a postpartum care plan for herself. "It was just trusting in the system that things were gonna go okay," Wanda said. "And that if something came up, she'd be able to handle it."

The birth was “a beautiful time,” Wanda said. Shalon did so well that she convinced her doctor to let her and Soleil — French for “sun” — leave the hospital after two nights (three or four nights are more typical). Then at home, “things got real,” Pryor said. “It was Shalon and her mom trying to figure things out, and the late nights, and trying to get baby on schedule. Shalon was very honest. She told me, ‘Friend, this is hard.’”

When Pryor found she was pregnant, too, with her son Everton, she told Shalon, “Let’s finally go after our rainbows and unicorns!” (Melissa Bunni Elian for ProPublica)

C-sections have much higher complication rates than vaginal births. In Shalon’s case, the trouble — a painful lump on her incision — emerged a few days after she went home. The first doctor she saw, on Jan. 12, said it was nothing, but as she and her mother were leaving his office, they ran into her longtime OB-GYN, Elizabeth Collins. Collins took a look and diagnosed a hematoma — blood trapped in layers of healing skin, something that happens in about 1 percent of C-sections. The OB-GYN drained the “fluctuant mass” (as her notes described it), and “copious bloody non-purulent material” poured out from the one-inch incision. Collins also arranged for a visiting nurse to come by the house every other day to change the dressing. Collins didn’t respond to a request for comment.

Over the next two weeks, Shalon's records show three more visits to Emory and two nursing visits at home. She feared that the incision wasn't healing fast enough, perhaps because the blood thinners she was taking to prevent an embolism —another C-section risk — were hampering coagulation. But a wound specialist said everything looked OK. Shalon was worried about Soleil, too: Breastfeeding was harder than expected, and she'd stopped taking narcotic painkillers because she thought they were making the baby groggy. But less powerful painkillers weren't working; between the pain and the anxiety, she was hardly sleeping. "Patient has poor endurance," the visiting nurse noted on Jan. 16. "Leaving the home is a TAXING and CONSIDERABLE effort."

What troubled the nurse most, though, was Shalon's blood pressure. On Jan. 16 it was 158/100, high enough to raise concerns about postpartum preeclampsia, which can lead to seizures and stroke. But Shalon didn't have other symptoms, such as headache or blurred vision. She made an appointment to see the OB-GYN for the next day, then ended up being too overwhelmed to go, the visiting nurse noted on Jan. 18. In that same record, the nurse wrote that Shalon had to change the dressing on her wound "sometimes several times a day due to large amounts of red drainage. This is adding to her stress as a new mom." Her pain was 5 on a scale of 10, preventing her from "sleeping/relaxing." Overall, Shalon told the nurse, "it just doesn't feel right." When the nurse measured her blood pressure on the cuff Shalon kept at home, the reading was 158/112. On the nurse's equipment, the reading was 174/118.

"We provide caring and compassionate care to all of our patients," the Visiting Nurse Health System said in an email. "She was in our care for less than four days but we gave the very best care we could."

Under current ACOG guidelines, blood pressure readings that high should trigger more aggressive action, such as an immediate trip to the doctor for further evaluation, possibly medication and more careful monitoring. A history of hypertension and multiple other risks should raise more red flags, Tsigas said. "We need to look holistically at the risk factors irrespective of whether or not she had a diagnosis of

preeclampsia," she said. "If somebody has a whole plateful of risk factors, how are you treating them differently?" High blood pressure in the postpartum period should always be considered an emergency, she said.

"It would have made sense to admit her to the hospital for a complete work-up, including chest xray, an echocardiogram to evaluate for heart failure, and titration of her medication (both pain meds and hypertension meds) to sort out what she needed to feel OK and get [her] blood pressure out of the severe range," wrote one doctor, a leading expert on postpartum care, who agreed to look at Shalon's records at ProPublica's request, but asked not to be identified. "Education on signs / symptoms of stroke seems insufficient — we don't want to wait until someone is having a stroke to get their BP treated. A next-day follow-up for a BP of 174/118 seems questionable for a postpartum woman. Same-day assessment in her provider's office, or in the ER, would have been very much within the bounds of common practice."

Instead, Shalon was given an appointment for the following day, Jan. 19, with an OB-GYN at Women's Center at Emory St. Joseph's, which handled her primary care. By then, Shalon's blood pressure had fallen, and there were "no symptoms concerning for postpartum [preeclampsia]," the doctor wrote in his notes. He wrote that Shalon was healing "appropriately" and thought her jumps in blood pressure were likely related to "poor pain control." Wanda and Shalon left feeling more frustrated than ever.

At home over the next couple of days, Wanda noticed that one of Shalon's legs was larger than the other. "She said, 'Yeah, I know, Mom, and my knee hurts, I can't bend it."

When McDonald-Mosley looked over the voluminous medical records a few months later, what jumped out at her was the sense that Shalon's caregivers didn't seem to think of her as a patient who needed a heightened level of attention, despite the complexity of her pregnancy.

“She had all these risk factors. If you’re gonna pick someone who’s going to have a problem, it’s gonna be her. … She needs to be treated with caution.” The fact that her symptoms defied easy categorization was all the more reason to be vigilant, McDonald-Mosley said. “There were all these opportunities to identify that something was going wrong. To act on them sooner and they were missed. At multiple levels. At multiple parts of the health care system. They were missed.”

Shalon’s other friends were growing uneasy, too. Back in New York, Bianca Pryor had her own pregnancy emergency — her son was born very prematurely, at 24 weeks — so she couldn’t be in Atlanta. But she and Shalon talked often by phone. “She knew so much about her body one would think she was an M.D. and not a Ph.D. To hear her be concerned about her legs — that worried me.” Pryor encouraged her, “‘Friend, are you getting out of the house? Are you going for your walks? She told me, ‘No, I’m on my chaise lounge, and that’s about as much as I can do.’”

Habiba Tran was so upset at Shalon’s condition that she took her frustrations out on her friend. “I was cussing her out. ‘Go to the f— ing doctor.’ She’s like, ‘I called them. I talked to them. I went to see them. Get off my back.’”

Shalon took this selfie with her dad, Samuel, and her newborn daughter on the morning of Jan. 24, 2017. Twelve hours later, she collapsed. (Courtesy of Wanda Irving)

On the morning of Tuesday, Jan. 24, Shalon took a selfie with her father, who'd been visiting for a week, then sent him to the airport to catch a flight back to Portland. Towards noon, she and Wanda and the baby drove to the Emory Women's Center one more time. This time, Shalon saw a nurse practitioner. "We said, 'Look, there's something wrong here, she's not feeling well,'" Wanda recalled. "'One leg is larger than the other, she's still gaining weight'— nine pounds in 10 days — 'the blood pressure is still up, there's gotta be something wrong."

The nurse's records confirmed Shalon had swelling in both legs, with more swelling in the right one. She noted that Shalon had complained of "some mild headaches" and her blood pressure was back up to 163/99, but she didn't have other preeclampsia signs, like blurred vision. She checked the incision — "warm dry no [sign/symptom] of infection" — and noted Shalon's mental state ("cooperative, appropriate mood & affect, normal judgment"). She ordered an ultrasound to check the legs for blood clots, as well as preeclampsia screening.

Both tests came back negative. As Wanda remembers it, Shalon was insistent: "There *is* something wrong, I know my body. I don't feel well, my legs are swollen, I'm gaining weight. I'm not voiding. I'm drinking a lot of water, but I'm retaining the water." Before sending Shalon home, the nurse gave her a prescription for the blood pressure medication nifedipine, which is often used to treat pregnancy-related hypertension. Emory Healthcare "is dedicated to the highest quality patient care," it said in an email. It declined to answer questions about Shalon's care, citing patient confidentiality.

Shalon and Wanda stopped at the pharmacy, then decided to go out to dinner with the baby. While they ate, they talked about a trip Shalon had planned for the three of them to take in just a few weeks. Ever since Sam III had died, Wanda and Shalon made a point of traveling someplace special on painful anniversaries. To mark his 40th birthday and the eighth anniversary of his death, Shalon had gotten the idea of going to Dubai. ("It's cheap," Shalon had told Wanda. "The money is worth so much more there. It's supposed to be beautiful.") She had long ago purchased their tickets and ordered the baby's passport. Now Wanda was worried — would she be feeling well enough to make such a big trip with an infant? Shalon wasn't willing to give up hope just yet. Wanda recalls her saying, "I'll be fine, I'll be fine."

They got home and sat in Shalon's bedroom for a while, laughing and playing with the baby. Around 8:30 p.m., Shalon suddenly declared, "I just don't know, Mom, I just don't feel well." She took one of the blood

pressure pills. An hour later, while she and Wanda were chatting, Shalon clutched her heart, gasped and passed out.

Paramedics arrived to find Shalon on the floor near the foot of her bed "pulseless and not breathing…" They tried to stabilize her, then rushed her to Atlanta's Northside Hospital, just a couple of miles from her home. In the emergency room, doctors discovered that the breathing tube had been "incorrectly placed," according to the ambulance service report — into her esophagus instead of her lungs. She never regained consciousness. Four days later, on Jan. 28, Wanda and Samuel withdrew life support and she died.

The news spread quickly among her colleagues at the CDC. William Callaghan, chief of the maternal and infant health branch, recalled in March that his boss, who had visited Shalon at the hospital, called to let him know. "It was a chilling phone call," said Callaghan, one of the nation's leading researchers on maternal mortality. "It certainly takes, in that moment, what I do, it made it very, very, very concrete. ... This was not about data, this was not about whether it was going up or it was going down. It was about this tragic event that happened to this woman, her family."

Northside declined to do an autopsy, telling Wanda and Samuel that none was required, they recalled. (The hospital declined to comment.) So Wanda paid $4,500 for an autopsy by the medical examiners in neighboring DeKalb County. The report came back three months later. Noting that Shalon's heart showed signs of damage consistent with hypertension, it attributed her death to complications of high blood pressure.

Wanda always knew she would be spending a lot of time caring for her granddaughter. She and Shalon loved the idea of the three of them making their way in the world together, trying to change it for the better.

The flag that covered Shalon's casket is now in a memorial case with other mementos and photos(Sheila Pree Bright for ProPublica)

Instead, Wanda has had to find a way to go on without her daughter and best friend. She took a break from her consultant work and moved into Shalon's cozy townhouse, now crowded with baby books and gear, to assume her new role. Soleil was colicky, prone to gastric problems that kept both of them up all night. Shalon's villagers stopped by often to help, but much of the time Wanda was on her own. Her grief was most acute at nights, but she couldn't let it interfere with her duties to Soleil.

Eventually the colic went away and Soleil thrived. In June, Wanda and her five-month-old granddaughter went to Chattanooga for the annual meeting of U.S. Public Health Service scientists. A new honor — the Shalon Irving Memorial (Junior) Scientist Officer of the Year Award — had been created to celebrate Shalon's legacy, and Wanda had been

asked to say a few words. She handed the baby to one of Shalon's CDC colleagues and took the small stage.

"Striving for excellence is a choice," she told the audience through barely suppressed tears. "It is a commitment. … It's a struggle to become the person you want to be. It's harder than you want. It takes longer than you want. And it takes more out of you than you expected it should."

Shalon personified excellence, Wanda said. "I don't know if Shalon became the woman that she ultimately wanted to be. But I do know that she wanted to be the woman she was."

She also knew how Shalon wanted to raise her daughter, and she was determined to do the same: reading to her, traveling with her, taking her to gymnastic and music classes. "She wanted Soleil to go to Montessori school, so I'm looking for a Montessori school for her," Wanda said. "She wanted her to be christened, we got her christened." Wanda and Soleil have developed a routine: Every morning they say hello to the photos of Shalon on the living room walls. Every evening they say goodnight. Sometimes Wanda shows Soleil the flag from her mother's casket, now encased in a wooden frame. She set aside other mementos for later — the academic writings, the certificates and awards, the manuscript of her book with Tran. If all goes according to plan, it will be published early next year.

One Saturday afternoon in October, Wanda received another book, this one compiled by Shalon's friends from the Epidemic Intelligence Service and entitled "Letters to Soleil." She put the baby on her lap and said, "I'm gonna read you some letters about your mom." One thing Wanda has tried never to do is cry in front of Soleil. But as she began reading aloud, she was sobbing. "And Soleil just kept looking at me — she couldn't understand what was going on. And about a minute later she took my glasses off with her hands and put them down and then laid her head right on my chest and started patting me. Which made me cry all the more."

Wanda in the living room of the town house she shares with Soleil. A photo of Shalon is in the background. (Sheila Pree Bright for ProPublica)

Shalon was a letter-writer too. One day not long after the funeral, Wanda found a note that her daughter had written to her two years earlier, around the sixth anniversary of Sam III's death. Shalon had left it among the other important items in her computer, trusting that if something ever happened to her, Wanda would find it. The letter reads like a premonition of her own death: Shalon wasn't afraid for herself, but agonized over how it would affect her mother.

I am sorry that I have left you. On the particular day that I am writing this I have no idea how that may have occurred but know that I would never choose to leave.

I know it seems impossible right now, but please do not let this break you. I want you to be happy and smile. I want you to know that I am being watched after by my brothers and grandma and that we are all watching you. Please try not to cry. Use your energy instead to feel my love through time and space. Nothing can break the bond we have and you will forever be my mommy and I your baby girl!

Now 11 months old, Soleil has her mother's precociousness, energy and headstrong yet sweet disposition. Like the sun she was named for, "she just lights up a room when she smiles," Wanda said. She comes into Wanda's bed every night and wakes her early to play. "She'll bite my nose and kick me — 'Nana, time to get up! Time to get up!'" And so Wanda does.