THE CITY OF NEW YORK
DEPARTMENT OF HEALTH AND MENTAL HYGIENE

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2008 Report to City Council on Local Law 20 of 2005: Public Access Defibrillator Use In New York City

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Executive Summary

In March 2005, the New York City Council enacted Local Law 20 (LL20) requiring the placement of Automated External Defibrillators (AEDs) in specific public places. This report outlines the locations and quantities of AEDs in New York City (NYC) required by LL20, as well as other registered AEDs, and looks closely at city agency compliance with the provisions of the law. All city agencies mandated under the law, including Department for the Aging, Department of Citywide Administrative Services, Department of Parks and Recreation, and Department of Transportation appear to be in compliance with the regulations.

New York State Law requires that all AEDs that are placed in a publicly accessible area, otherwise known as 'public access defibrillators' (PADs), in NYC be registered with the Regional Emergency Medical Services Council of New York City, Inc. (REMSCO). REMSCO reports that as of May 31, 2008, 5145 PADs are registered, up from 4708 registered devices at the same time last year.

There were 148 documented PAD uses reported to REMSCO for the period of June 1, 2007 through May 31, 2008. During this same time period, the Fire Department of New York (FDNY) report a total of 7937 out-of-hospital cardiac arrests. While acknowledging gaps in the existing data, we only have evidence that 1 out of the 7937 out-of-hospital cardiac arrests were responded to by use of a PAD required under the authority of LL20. The patient outcome associated with this use is unknown.

LL20 identified private nursing homes as a required location for PAD placement. However, in 2008 it was determined that the City is preempted by NYS Public Health Law Sections 2812 and 2801 from enacting and enforcing any regulations for hospitals, which includes private nursing homes in the definition. NYS does not currently require PADs in nursing homes although many already have registered devices. While survival from out-of-hospital cardiac arrest associated with PAD use in nursing homes is not available locally, data included in this report show that nursing homes represent the single most reported location of PAD use in NYC.

It is well documented that AEDs located in high traffic areas (e.g.: airports, other transportation hubs) and in places where people at a high risk for sudden cardiac arrest live or congregate (e.g.: nursing homes, senior centers) have a higher likelihood of saving lives.[1,2,3,4,5,6,7] AEDs are already in use by FDNY, the New York City Police Department (NYPD), Port Authority Police Department (PAPD) and in other private settings. FDNY maintains AEDs on all fire engines, NYPD utilizes AEDs within many of its units, and PAPD maintains AEDs at the airports, with some patrol units and at some PATH train hubs. The DOHMH would also recommend PAD placement in nursing homes, however such a requirement could only be created at the state level.

Most cardiac arrests are due to underlying causes that evolve over years and can be prevented and treated prior to the onset of cardiac arrest. It is our conclusion that the most effective way to save lives and prevent out-of-hospital cardiac arrest, is through investment in smoking cessation, and preventing and/or controlling obesity, physical

inactivity, high blood pressure and elevated cholesterol. As a City, this will have the greatest impact heart disease related morbidity and mortality.

Report on Local Law 20 of 2005:
Public Access Defibrillator Use in New York City Since Implementation

Attachments:

- Local Law 20, 2005
- NYC DOHMH Rule Implementing Section 17-188 of the Administrative Code Requiring Placement of Automated External Defibrillators in Certain Public Places

1.0 Introduction

In March 2005, the New York City Council enacted Local Law 20 (LL20) requiring the placement of Automated External Defibrillators (AEDs) in specific public places. LL20 also mandated that the New York City Department of Health and Mental Hygiene (DOHMH) provide a report on the registration and placement of AEDs following the first year of enactment. After the first year's report, DOHMH is required to report on placement and registration for each of the four years following. Now at the completion of year three of LL20's enactment, and in accordance with this mandate, we submit this report indicating the placement and registration of AEDs in public places as required by LL20.

LL20 and the DOHMH rules state that any AED acquired, possessed and operated be done so in accordance with New York State Public Health Law §3000-b, which requires registration of the devices with the Regional Emergency Medical Services Council of New York City, Inc. (REMSCO) before they can be used by non-medical personnel.

Although not mandated by the LL20 reporting requirement, limited available data from REMSCO and the Fire Department of New York (FDNY) on AED uses and outcomes is also reported here in an attempt to assess the impact of this law. For those readers becoming newly acquainted with LL20, we refer you to the original legislation and the DOHMH regulation.

This regulation only governs Public Access Defibrillation (PAD) provider sites, defined as sites where AEDs are placed in public places and may be used by non-medical personnel. It does not cover the use of AEDs as part of medical response by emergency medical systems (EMS) personnel, including emergency medical technicians and paramedics, nor does it govern the use of AEDs in medical facilities that have more advanced levels of medical care.

For the purposes of this report, the term 'AED' means a medical device, approved by the United States Food and Drug Administration, that:

1. is capable of recognizing the presence or absence, in a patient, of ventricular fibrillation and rapid ventricular tachycardia;
2. is capable of determining, without intervention by an operator, whether defibrillation should be performed on the patient;
3. upon determining that defibrillation should be performed, automatically charges and recommends delivery of an electrical impulse to the patient's heart; and
4. then, upon action by an operator, delivers an appropriate electrical impulse to the patient's heart to perform defibrillation.

The AED may also be referred to as a PAD. This is to denote that the AED is in a publicly accessible location and is being used by a non-911 medical provider such as a security guard or other lay rescuer.

See attachments:

- Local Law 20, 2005
- NYC DOHMH Rule Implementing Section 17-188 of the Administrative Code Requiring Placement of Automated External Defibrillators in Certain Public Places

2.0 Inquiries from the Public

2.1 311 Activity

Inquiries to the City's 311 helpline about "AEDs" or "defibrillators" are addressed by providing information regarding available training centers and/or directing callers to the DOHMH's Cardiovascular Disease Prevention and Control Program (CVD) for more information.

Complaints and Inquiries through the 311 System

For the period June 1, 2007 through April 31, 2008, (May 2008 data are not yet available), the 311 helpline received 1175 calls requesting information on CPR and/or AED training. The number of monthly requests for information on CPR/AED training has been relatively consistent over the past year and demonstrates a continuing public interest for this training.

During this same time period, the 311 helpline received 21 inquiries about LL20 including 2 complaints which were routed to the CVD program. Both complaints were regarding health club facilities not regulated by LL20 and were referred to the New York State Attorney General's Office. Information was also sent to the facilities in question, detailing the New York State law and their obligations under it.

Date	CPR or Defibrillator Training	LL20 Inquiries or Complaints
Jun-07	132	3
Jul-07	119	5
Aug-07	123	2
Sep-07	93	0
Oct-07	101	5
Nov-07	65	2
Dec-07	76	0
Jan-08	99	3
Feb-08	98	0
Mar-08	146	1
Apr-08	123	0
Period Totals	**1175**	**21**

Data Source: NYC Department of Information Technology and Telecommunications 2007-2008

3.0 Data Sources for PAD Placement, Use and Event Outcomes

PAD placement, use, and cardiac arrest data in this report come from the following sources:

The Regional Emergency Medical Services Council of New York City, Inc. (REMSCO) - REMSCO is designated by New York State law to track all registered PADs within New York City and to maintain records on all PAD use. DOHMH has provided REMSCO with funding to refine the tracking systems in order to streamline registration and improve reporting accuracy. The time period for data included in this report is 6/1/2007-5/31/2008.

The Fire Department of New York (FDNY) Division of Emergency Medical Services (EMS), Office of Medical Affairs - This office maintains records on all patients entered into the municipal 911-EMS system. Limited data on all out-of-hospital cardiac arrests in NYC was made available for this report for the time period 6/1/2007-5/31/2008. Unfortunately this year, FDNY was unable to supply data on survival-to-hospital-discharge.

City Agency Self-Report – Data was supplied to DOHMH by all affected city agencies. These placements were confirmed in the REMSCO database.

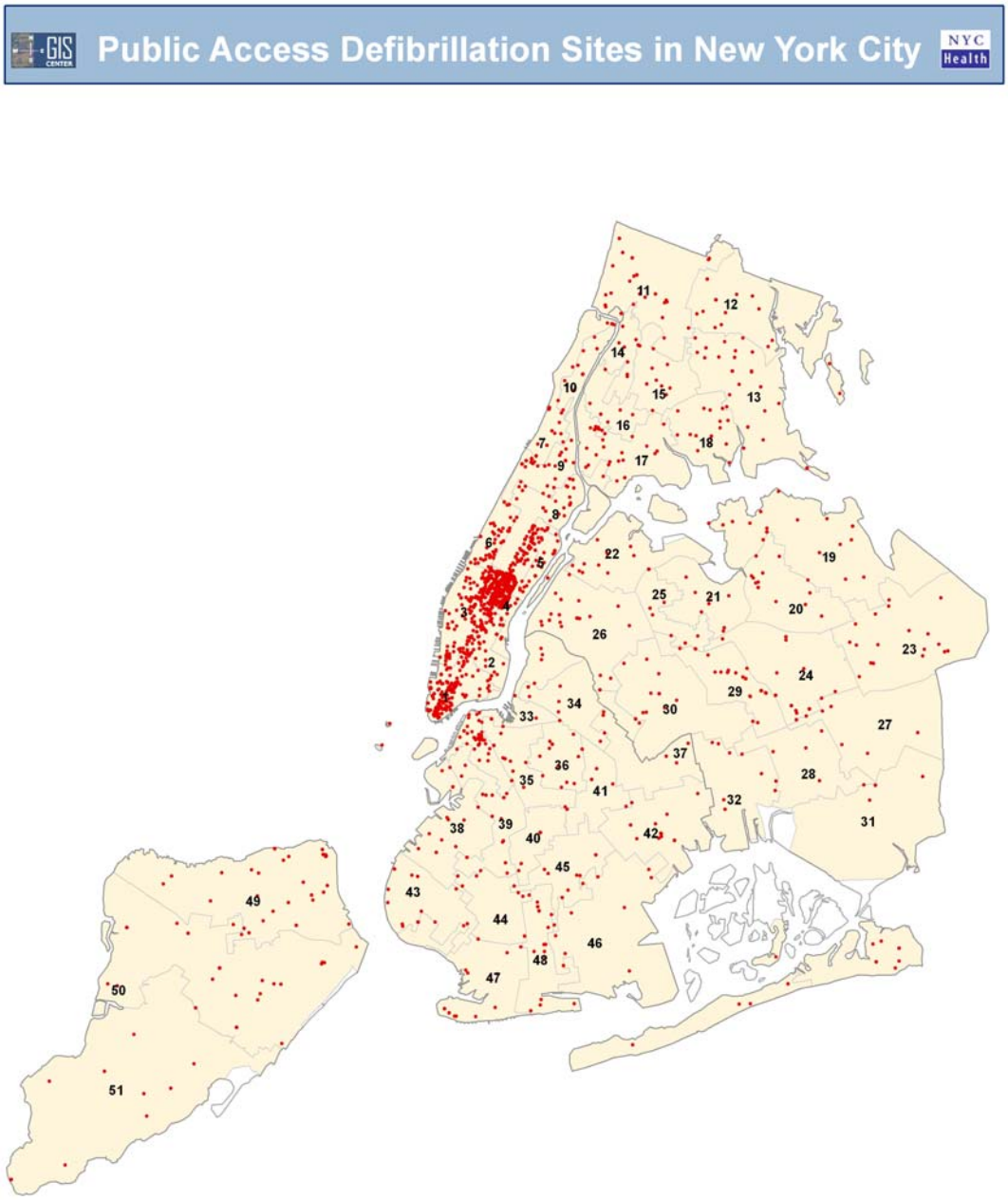
4.0 PAD Locations

4.1 PAD Locations

According to REMSCO data, 5145 PADs are registered throughout the five boroughs. Over the previous reporting period, a total of 4708 PADs were registered with REMSCO. Not all are required under LL20.

4.2 Map of PAD Locations

The following map displays all registered PAD locations in NYC. Boundaries represent the council districts and each red dot represents a PAD site. Multiple PADs may and do exist at one location or address. Registered PAD sites are concentrated in Manhattan.



Note: *This represents only PAD sites and does not include AEDs used by medical personnel in an official emergency response capacity. This also does not include AEDs maintained by the Department of Education.*

4.3 Non-Government Locations

Following is a description, by type of location, of the number of non-government PAD facilities that are registered with REMSCO.

Nursing Homes

LL20 lists as a location required for PAD placement nursing homes that do not already provide advanced life support ('advanced life support' includes use of a manual or automated defibrillator by trained physicians, registered nurses or emergency medical technicians present on-site 24 hours a day, seven days a week). These placements were included in previous reports. However, after further review of the New York State (NYS) statute, it was determined that the City is preempted by NYS Public Health Law Sections 2812 and 2801 from enacting and enforcing any regulations for hospitals, which includes private nursing homes in the definition. Therefore, LL20 no longer applies to private nursing facilities. Nevertheless, LL20 appears to have had an impact on PAD placements in these facilities. REMSCO reports 103 registered PADs in 43 of the estimated 183 nursing homes.

There are three public nursing facilities covered by LL20. All are operated by the NYC Health and Hospitals Corporation. One of the facilities has 24-hour advanced life support on the premises and is therefore exempt from this regulation. The remaining two facilities both have PADs and are in compliance with LL20.

Stadia and Arenas

There are at least 21 stadia and arenas in the city which would be subject to LL20 but not all have AEDs registered with REMSCO. DOHMH contacted all 21 stadia and arenas in NYC. Ten of these facilities report having PADs as required in LL20. Eight of the stadia and arenas reported offering a higher level of medical care, either providing full-time clinical services staffed by medical personnel or private EMS on a stand-by basis, during events held at each respective stadium as required by law for events with more than 5,000 people in attendance, and are thus exempt from the LL20. Several of those contacted also reported having PADs that were not in the REMSCO registration data. They have been informed about the registration requirement. Five of the stadia could not be reached for verification of PAD placements. DOHMH will continue to work with these facilities to assure full compliance with LL20.

Private Golf Courses

The three private golf courses in NYC were contacted and all have registered PADs.

4.4 City Agency PAD Placement

Following is a review of the status of PAD placements by city agencies covered by LL20.

Department for the Aging

The Department for the Aging (DFTA) has a total of 316 PADs placed and appropriately registered, in accordance with New York State Law.

Department of Parks and Recreation, including Public Golf Courses
As outlined in LL20, the Department of Parks and Recreation (Parks) is required to identify six parks in each borough where devices will be placed. Placements are reported by Parks in a minimum of eight facilities in each borough. These placements fulfill the provisions as outlined in LL20. Public golf courses are required to have PADs, and all eleven of the golf courses within the Parks system have PADs installed, registered and are included in these numbers. All Parks PADs are appropriately registered in accordance with New York State Law.

Borough	Parks Facilities Identified	Number of PADs in Parks System
Bronx	8	8
Brooklyn	10	10
Manhattan	15	16
Queens	8	8
Staten Island	10	10
Citywide	51	52

Data Source: NYC Parks Department, 2008

Department of Citywide Administrative Services
The Department of Citywide Administrative Services, Division of Facilities Management and Construction (DCAS) has a total of 110 PADs placed throughout its facilities

Borough	Number of DCAS Buildings with PADs	Total Number of PADs in DCAS System
Bronx	6	13
Brooklyn	11	20
Manhattan	22	51
Queens	7	15
Staten Island	7	11
Citywide	53	110

Data Source: NYC Department of Citywide Administrative Services, 2008

All DCAS PADs are appropriately registered in accordance with New York State Law.

Department of Transportation
Ferry terminals owned and operated by the Department of Transportation (DOT) with a passenger capacity of ≥ 1000 are also subject to LL20. The two facilities under DOT jurisdiction that fit these criteria are the South Ferry Terminal in Battery Park and the St. George Terminal on Staten Island. Both of these facilities have PADs registered with REMSCO as required. Although not required by LL20, DOT also has reported

placement of PADs on all of the ferry vessels. All PADs owned by DOT are appropriately registered in accordance with New York State Law.

5.0 PAD Uses

5.1 FDNY EMS Data on Out-of-hospital Cardiac Arrests

The following chart displays the number of out-of-hospital cardiac arrests occurring during the 12 month period from June 1, 2007 through May 31, 2008. Emergency medical personnel, in consultation with an online medical control physician and in accordance with practice protocols, may pronounce a patient deceased on the scene. In this case, transportation will not be provided by EMS. Of note, 38.6 percent (3067/7937) of all out-of-hospital cardiac arrests were not transported by EMS.

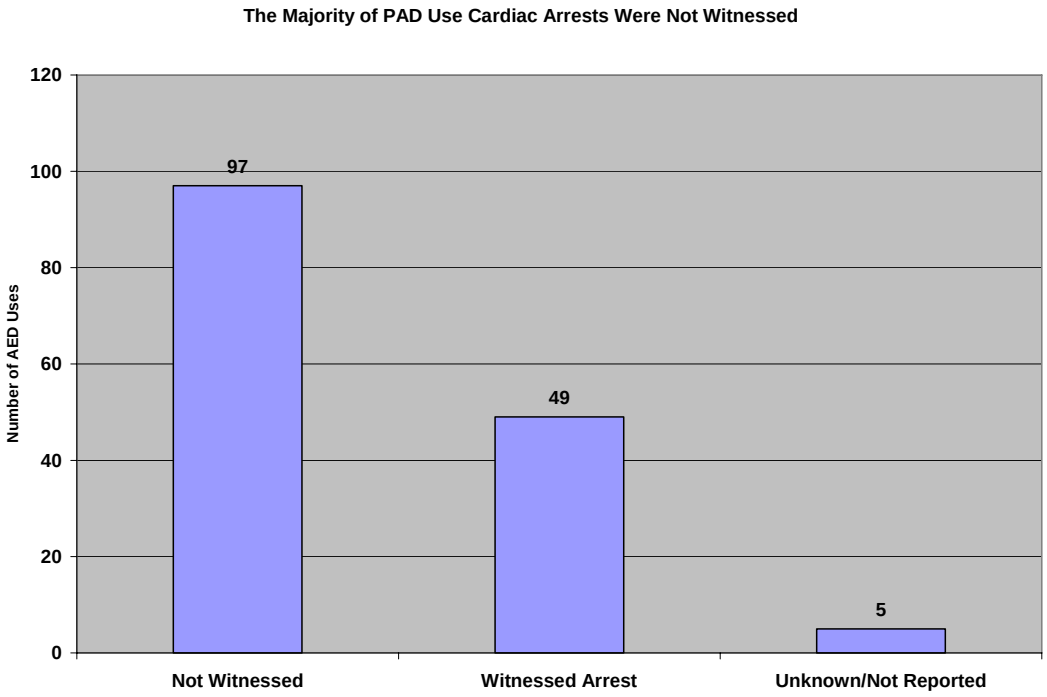
Out-of-Hospital Cardiac Arrests Responses by FDNY	
Category	**Citywide Totals**
Transported	3890
Transported with ROSC*	980
Not Transported (Deceased on Scene)	3067
Total Cardiac Arrests	**7937**
* ROSC defined as 'Return of Spontaneous Circulation'	

911-EMS Data from 6/1/2007-5/31/2008

Data Source: Fire Department of New York, Office of Medical Affairs, 2008

5.2 REMSCO Data on Witnessed Arrests

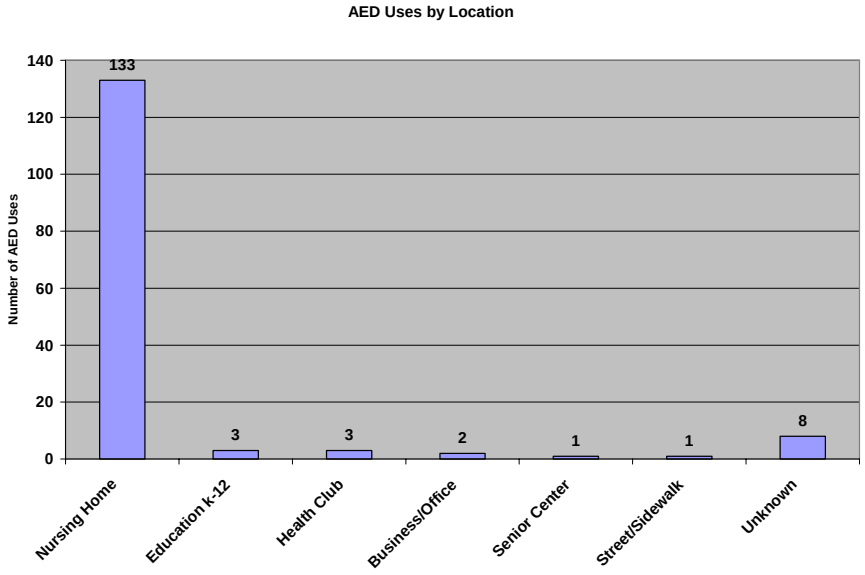
AEDs are most effective if used within several minutes of a cardiac arrest.[8] Therefore a witnessed event offers the greatest likelihood for immediate lifesaving action. Arrests were not witnessed in 97 of the 151 (65%) total PAD uses. Arrests were witnessed by either a bystander or a CPR/AED trained lay-responder in 49 (32%) of the total PAD uses.



Data Source: Regional EMS Council of New York City, 2008

5.3 REMSCO Reported PAD Use in New York City

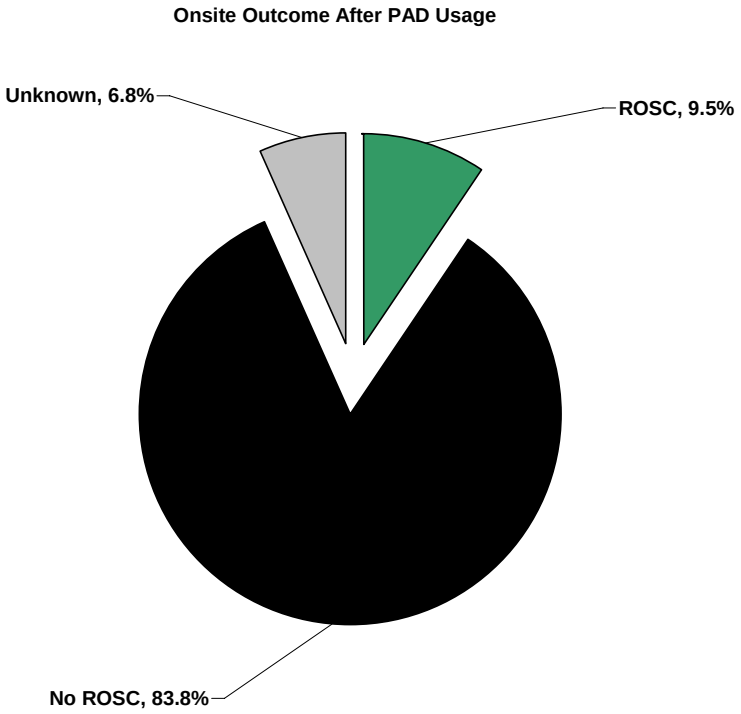
According to available data on registration and use of devices, PAD uses were reported most frequently by nursing homes during this period as well as in the prior reporting years (includes both LL20 required PAD sites and all other sites reported to REMSCO). There was only one use associated with a LL20 mandated placement, and this occurred in a senior center.



Data Source: Regional EMS Council of New York City, 2008

5.4 REMSCO Data on Return of Spontaneous Circulation

REMSCO PAD use data report on return of spontaneous circulation (ROSC), defined as a return of a pulse when it had been reported as absent prior to PAD use. ROSC related outcomes reported here are categorized as follows: 'ROSC', 'No ROSC' and 'unknown'.



Data Source: Regional EMS Council of New York City, 2008

According to REMSCO data, of those cases in which ROSC status was reported, 14 of the 138 uses (10.1%) were associated with a return of spontaneous circulation (ROSC). ROSC may also have occurred in the group where outcome is unknown (6.8%). Therefore, the maximum number of out-of-hospital cardiac arrest cases in which circulation may have returned with PAD use is 24 (14 ROSC and 10 unknown). REMSCO does not collect information on long-term outcome (e.g.: survival to hospital or out of hospital) therefore survival rates associated with use cannot be reported.

Of note, 10 of the 14 ROSCs reports were related to PAD use in private nursing homes.

5.5 Impact of LL20

REMSCO collects reports on use of all PADs placed in NYC, both mandated for placement by LL20 or by others, such as New York State. LL20 mandated placements not pre-empted by state law include the following facilities: DCAS buildings, Parks, golf courses, DOT ferry terminals, HHC nursing facilities, stadia and DFTA senior centers.

During the period from 6/1/2007 to 5/31/2008, only one LL20 mandated placement PAD was reported used, which was located in a DFTA senior center. The outcome from this use is unknown. Based upon FDNY data included in this report (see section 5.1) 7937 out-of-hospital cardiac arrests occurred in NYC during this reporting period. Therefore, only 1 out of 7937 total out-of-hospital cardiac arrests during this time were responded to with a PAD required by this regulation. An additional 133 PAD uses were reported in private nursing homes which LL20 is preempted from regulating.

6.0 Data Limitations

Data utilized for this report has limitations. First, we are unable to determine if all AEDs in public locations in NYC are registered with REMSCO as required. During research for the 2006 report, DOHMH phone calls to facilities required by LL20 to have PADs demonstrated a lack of knowledge of the registration and reporting requirements of the NY State Law. In response, the DOHMH reached out to all City Agencies and other LL20 covered entities and brochures were mailed to inform them of their responsibilities. Still, devices may remain unregistered, including in those locations not covered by LL20. Thus, the total number of devices and uses reported to us by REMSCO may underreport the true total in place and used in NYC at large. A limitation of the REMSCO use data is the potential for failure of a covered and registered entity to report a use to REMSCO.

REMSCO data includes report of 'return of spontaneous circulation' (ROSC) following AED use, but provides no further information on individual outcome, such as survival to discharge from the hospital. To provide context for the overall potential impact of PAD use in NYC, this report also includes available data from FDNY. FDNY maintains records from the electronic patient care reports (ePCR) generated by the NYC EMSA system. These data report on out-of-hospital cardiac arrests responded to by EMS personnel and includes detail on EMS transport to hospitals and ROSC during pre-hospital resuscitation attempts. While this provides an estimate of the total number of out-of-hospital cardiac arrests in NYC, only outcome in the field is reported; survival to hospital discharge data is not.

7.0 Conclusions

LL20 mandated the placement of PADs by both public and private entities. As described, city agencies specified in LL20, which include DCAS, DFTA, Parks and DOT appear to be in compliance with the provisions of the law. Additionally, HHC owned nursing facilities, as well as the golf courses also appear to be in compliance with the regulation. Stadia and arenas in the city also appear to be in compliance, although they are likely providing a higher standard of care than the LL20 PAD requirement.

To date, required registration of PADs does not appear to have been universal beyond those entities described above and therefore the data used in this report is likely incomplete. Research for these reports found a lack of knowledge of the registration and post-use reporting requirements of NYS Law among both public and private PAD providers. DOHMH has worked with REMSCO to create and maintain an online registration system in an effort to increase registration and use reporting and to increase awareness amongst covered facilities. We believe that the process of registration is now easier and more streamlined and has allowed for more efficient capture and organization of the data used in this report. Additionally, REMSCO reports that PAD post-usage reporting is more timely and comprehensive. While there are electronic systems to collect both PAD use and FDNY's emergency response, we are unable to link these two data sources and provide more accurate reporting of PAD use and associated outcomes.

There was one PAD use in a facility which is currently covered by the LL20 mandate, but the outcome from that use is unknown. Usage reports submitted to REMSCO, including details of the circumstances of PAD use, are often incomplete. This suggests that even when registered, PAD use may not be reported. Therefore there may have been PAD uses during this period leading to survivals that are not captured in the data. Still, in only one of the 7,937 of known cases of out-of-hospital cardiac arrests do we know that a PAD required by LL20 was utilized. While these data do not allow for a comprehensive assessment of the impact of LL20 on survival from out-of-hospital sudden cardiac arrest in NYC, we have no evidence that its implementation has saved lives in its third year.

It is paramount that our public health interventions include evidence-based initiatives designed to significantly reduce cardiovascular disease related death and illness at the population level and that evaluation of these programs are ongoing to assure the best use of limited public resources. It is well documented that PADs placed in high traffic areas (e.g.: airports, other transportation hubs) and in places where people who are at a high risk for sudden cardiac arrest live or congregate (e.g.: nursing homes, senior centers) have a higher likelihood of saving lives.[9,10,11,12,13,14,15] AEDs are already in use by FDNY, NYPD, Port Authority Police Department (PAPD) and in other private settings. FDNY maintains AEDs on all fire engines, NYPD utilizes AEDs within many of its units, and PAPD maintains AEDs at the airports, with some patrol units and at some PATH train hubs.

The PADs in private nursing homes registered with REMSCO have not been associated with documented lives saved, but were used most frequently and may be an appropriate measure. LL20 attempted to require placement of PADs in private nursing homes and

may have succeeded in increasing these placements, but was preempted from regulation by NY State Public Health Law. LL20 requires the Department to include in this report the identification of additional locations throughout the City of New York the warrant the placement of PADs. Since nursing homes demonstrate the highest usage rate of all PAD locations, we recommend PAD placements in such facilities where they do not already offer a higher level of care, (as stated in LL20 and NYC Administrative Code 17-188).

Still, most cardiac arrests are due to underlying causes that evolve over years and can be prevented and treated prior to the onset of cardiac arrest. Addressing smoking, obesity, physical inactivity, high blood pressure and elevated cholesterol effectively as a city will have the greatest impact on reducing cardiac deaths.

8.0 References

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