



State of New York  
County of Broome Government Offices

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**Broome County Health Department**

Jason T. Garnar, County Executive · Rebecca A. Kaufman, MS, Director of Public Health

**BROOME OPIOID ABUSE COUNCIL**

**April 7, 2017**

**Present:** Jill Alford-Hammitt, Iris Borilla, Diane Brown, Jason Garnar, Matthew Gawors, Jim Hawley, Arthur Johnson, Nancy Johnson, Ben Lainhart, Jill Lloyd, Haley McCrory, Mary McFadden, Jim Mullins, Dr. Christopher Ryan, Raymond Serowik, Penny Stringfield, Susan Wheeler, Lorraine Wilmot

**Absent:** Robin Alpaugh, Scott Baker, Stephen Cornwell, Katie Cusano, Valerie Datta, Rich David, Megan D'Introno, David Harder, Dr. Julia Hunter, Rebecca Kaufman, Lee Livermore, Donna Lupardo, Kevin McManus, Kate Newcomb, Kimberly Newell, Dennis O'Keefe, Michael Ponticiello, Dr. Peter Ronan, Kara Skellett, Colleen Wagner, Chris Whalen, Alan Wilmarth

**Announcements:**

Jill Lloyd and Susan Wheeler will co-chair the Rural Subcommittee. They will provide updates from the AmeriCorps project. A workgroup is being formed to assist the Rural Health Network with writing a grant for the next round of funding for the AmeriCorps project.

**Community Education Committee:**

- Members are wrapping up the second annual underage drinking prevention poster contest. Five school districts were involved (Windsor, Seton, BOCES EverTech and East Learning Center, and Deposit). There were 79 submissions and the winner will throw out the first pitch at the April 19<sup>th</sup> Rumble Ponies game which is the drug/alcohol free night. Kara raised 2,000 that was needed for the substance prevention/alcohol-free event sponsored by the Drug Free Communities Grant and the Binghamton Rumble Ponies.
- BOCES has been very helpful with Information being placed on the school websites. All schools will post the same message at the same time to keep messaging consistent as part of the Substance Abuse Prevention/Information Awareness Campaign.
- The Social Norms Misconception Campaign is moving forward to change people's perception of negative teenage activities.
- The funding initiative from Senator Akshar will put five counselors in seven more school districts by the end of April.
- There were 250-300 people in attendance at the Sports Injury forum at the Windsor School District. They required all athletes to attend and many parents attended as well.
- There were about 300-350 people in attendance at the Afton/Bainbridge-Guilford School District's sports injury event.
- Joshua Wright, a former athlete in recovery, was very well received at an event for the Susquehanna Valley School District. The Union-Endicott, Deposit, Chenango Forks and Whitney Point School Districts would like to host events for their student population. A large forum will be held in August, possibly at the Chenango Valley School District, jointly with other school districts.

**Law Enforcement Committee:**

- Kate Newcomb was unable to attend this meeting; a committee update will be provided at the next meeting.

### **Treatment and Prevention Committee:**

- Fairview will lose some HUD Funding for supportive living and are exploring ways to fill that funding gap. Transitional housing is no longer funded– only permanent supportive housing.
- The Addiction Crisis Center is still waiting for their stabilization license.
- New Horizons has seen four people who are candidates for the jail Vivitrol Program. There are 146 people in the Methadone Clinic.
- Dr. Julia Hunter’s new program for pregnant women is going well.
- There are six women in the YWCA Bridge Program which is celebrating its first-year anniversary in early May. There are currently two beds open; they are having trouble getting referrals for that program. The women in the program do well. One woman relapsed but continues in the program. The other five women are doing well and the babies are healthy.
- Seven members from the Children’s Home of Wyoming Conference boy’s home are involved in an adolescent group. Where and when to have the group is a barrier because they serve a criminal population at ACBC so no adolescents are allowed in the building.
- The Ancillary Detox Program is progressing. The software for digital records was implemented and they had training so all the information is being input. The funds from the Rotary group for medical equipment will be released this month and the final adjustment for the medical protocol will be complete.
- Jill Lloyd will facilitate the community grief group which begins May 4<sup>th</sup>. She hopes to start a co-occurring disorder group as well for men that will be suffering a substance use and mental health disorder. This will evolve into an evening group where families meet to work on skills.
- The primary substance ACBC found in March was marijuana and cocaine.
- Twenty-five people received Vivitrol at ACBC during March. They hired a new nurse to assist with the number of people that come in looking for that medication.
- The Family Navigation Program served 28 families during March. Peer counselors interacted with 38 families. There were 21 referrals out of those programs into the inpatient programs and treatment-related services.
- The results of the Prevention Needs Assessment have been received and will be rolled out to participating school districts in May and then aggregate data will be released to the community.

### **Education of Medical Professionals Committee:**

- The academic detailing project has concluded.
- Prescribers can only prescribe seven days of an opioid which will hopefully prevent development of new opioid dependent patients. There may be an increase in heroin use which is more accessible and cheaper. Jim Hawley reported that there has been an increase all over the state with new cuts with Fentanyl and its derivatives.
- Art Johnson recently attended a meeting with funeral directors. Coroners rely on EMS personnel on the spot for overdose information and coroners may not go to the scene of all overdose deaths. There is concern how that affects the data. Dr. Ryan suggested that we include a coroner on BOAC. It is unclear if there is a protocol for an unattended death. Toxicology reports are taken which should pick up overdose deaths regardless of whether the coroner is present or not. The presence of an opioid in a bodily fluid toxicology report would not cause a coroner to note the death as an opioid death; it would be dependent on the concentration and what other things were going on at the time of death. Coroners speak to the family, do a physical exam of the scene and the body. There are lab tests and sometimes x-rays of the body to determine the cause of death. The District Attorney’s Office tries to attend as many deaths as they can when alerted to an overdose death as part of the death investigation. Crime scene investigators photograph suspicious deaths.

## **Disease Surveillance Systems:**

Dr. Ryan presented on how disease surveillance systems work. The idea is to use the best data from the previous interval to draw judgements about events and expectations for the current interval. Health event surveillance requires a case definition which is very complicated and precise in describing what types of events will be counted. Information is put into a math algorithm with the output being the expectation for the current interval. There is always variability in the expectation for the current interval. If the count is higher than expected, you get a signal to take action. If there is no effective action possible on short notice, there is no need to conduct high-frequency (short-interval) surveillance. A case definition which is clearly described in advance is necessary to understanding the surveillance results. A variety of case definitions could be used to understand a public health problem and there is always variability that must be accounted for mathematically.

See attached reports for a description of surveillance for fatal opioid overdose conducted by the Health Department.

We conduct surveillance of EMS naloxone administrations for overdose deaths through the Susquehanna EMS Region: Broome, Tioga and Chenango Counties. Dr. Ryan serves as their epidemiologist. A trained person was at the scene and made a clinical decision that the person was suffering an opioid overdose and administered naloxone. There is a project in the process to look at recurrence rates for naloxone administration.

There was discussion on whether there is a central data collection point and how to get information out quickly to alert treatment providers or law enforcement if there is a large increase in overdose deaths. There are questions as to whether public announcements would have a beneficial impact on users. Family members who are trying to be vigilant keeping an eye on a user waiting to get into rehab could be more vigilant if they knew there was a bad batch of heroin in the community. There have been several overdoses in the past week.

The NYS Health Commerce Systems is one avenue to alert emergency rooms about deaths associated with heroin. HIDTA developed a telephone application. The first responder goes to the scene and asked 6-7 specific questions which is uploaded into a map to see if there is a spike which would generate an email alert. There is a webinar to describe the new system which Jim will arrange for others to view. HIDTA provides EMS data to the NYS Department of Health and Southern Tier AIDS Program. They receive information if there is a spike in deaths elsewhere that might occur here. He could provide information if there has been a spike in deaths recently.

There is an abundance of data related to substance use that needs to be synthesized that cannot be done by one person. A Data and Surveillance Subcommittee will be formed. Mary McFadden, Dr. Chris Ryan and Iris Borilla will form this subcommittee. Let Mary know if you would like to participate on this subcommittee. They will also work on harm reduction messaging. A local media representative approached Penny Stringfield about assisting with a public service campaign, at no cost.

The County Executive asked Ray Serowik to look at 911 dispatch data to provide indicators of overdose deaths. Ray provided information from 3/1/14-3/31/17. There is a limited amount of information elicited from the protocols for these calls. There is an audio recording. There is a large percentage that we know later were overdose deaths but do not know if it was a suicide or natural event. Two things are overlaid in the data – EMS administration of naloxone and monthly counts of doses administered to residents of Broome County. Law enforcement personnel also provide naloxone administration. Numbers have increased since 2014 and there was a spike in February.

Iris Borilla reported that there were 17 overdose deaths from January 1-March 31, 2017 in Broome County. She will verify whether this only includes Broome County residents or everyone who overdosed in Broome County. This information was obtained from a review of death certificates, police reports, coroner's reports, toxicology reports, and interviews with addicts and family members of the deceased. The average age was 35 with 11 males and 6 females. Eight of the seventeen deaths were in the City of Binghamton. In comparison, there were 26 overdose deaths in the first quarter of 2016. The District Attorney's Office hopes to provide treatment for people who need it and be proactive in stopping new cases. Through Operation Safe Stop, 246 individuals were offered substance abuse treatment. Press releases are being sent out about drug arrests. There is a large demand for drugs here with a huge markup and dealers use various methods to bring drugs into our county.

The next meeting is scheduled for Friday, May 5<sup>th</sup> at 10:00 a.m. at the Broome County Health Department. The website will be an agenda item. We would like to have a public calendar on the website so people know what events are coming up. For the next meeting the Health Department will develop some general messaging on harm reduction. A request will be made to the coroners to see if one of them is willing to serve on BOAC.

# Opioid-involved deaths in Broome County

Christopher W. Ryan, MD, MS

March 16, 2017

## 1 Background

Opioids (sometimes ambiguously referred to as “narcotics”) are chemicals that bind to opioid receptors in the brain, causing a variety of effects: euphoria, relief of pain, and respiratory depression being clinically the most relevant.

The primary *natural opioids* derived from opium poppies are morphine and codeine. These can be chemically modified to yield *semi-synthetic* opioids such as hydromorphone, hydrocodone, oxycodone, and heroin. Fully *synthetic* opioids include fentanyl, methadone, and tramadol.

Opioids are available for medical use in a variety of forms. Several are available as the sole active ingredient in a tablet. Others are manufactured into tablets containing other analgesics as well, typically acetaminophen or ibuprofen. Typical examples of the latter are Vicodin (hydrocodone plus acetaminophen), Percocet (oxycodone plus acetaminophen), and Vicoprofen (hydrocodone plus ibuprofen). Some are available as sustained-release tablets that permit less-frequent dosing. Some are available in formulations that can be absorbed through the lining of the mouth, useful in patients who cannot swallow. One, fentanyl, is available in a patch, from which the medicine is absorbed through the skin. Several opioids are available in injectable form, used primarily for hospital inpatients. Patients suffering from opioid addiction have developed a variety of other, creative, methods of administration, such as dissolving tablets for intravenous injection, or chewing fentanyl patches.

Because of their euphoric effects, opioids are subject to abuse, and patients can become addicted to them. Patients, whether addicted or not, can sometimes overdose on opioids. Patients can overdose with their own prescribed opioids, another person’s prescribed opioids, or non-prescribed opioids (eg heroin). Opioid overdose can be fatal, usually via respiratory depression. The frequency of fatal opioid overdose is the subject of this brief report.

## 2 Methods

The definitive source for cause-of-death data is the death certificate. The certifier (who is usually the patient’s physician or the coroner) completes the cause- and manner-of-death sections on the death certificate based on what they know of the patient, the death scene, the autopsy, etc. The Broome County Health Department does not investigate individual deaths, nor does its personnel fill out death certificates.

The data from the completed certificates are then processed by the National Center for Health Statistics and the New York State Department of Health (NYSDOH) to maximize accuracy and completeness, and the causes are coded using the International Classification of Diseases. Although there is some unavoidable ambiguity and potential error in this coding process, it provides the final and most definitive information on the cause and circumstances of each death—the “gold standard” so to speak. There is currently no routine process that will provide better data.

The process of establishing that gold standard can take a long time. In disease surveillance, there is always a trade-off between accuracy and timeliness. So in the meantime, this report uses copies of death certificates that the Broome County Health Department requests routinely from the municipal clerks. These “local” copies of the death certificate data are stored in a spreadsheet at the Broome County Health Department. There are no ICD-10 codes included in these data. Thus the question becomes, how to identify death certificates that represent opioid-involved deaths? The Council of State and Territorial Epidemiologists (CSTE) has created several lists of keywords which, when

found on death certificates, they believe might indicate a drug-involved death, an opioid-involved death, or a heroin-involved death (or some combination). Those lists are available here: <http://www.cste.org/group/OverdoseWorkgroup>. The CSTE attempted to include common variations and misspellings of opioid-related words. This report uses those words, supplemented by a few additional misspellings and plural forms that were not included in the CSTE list such as “opioid,” “opioids,” “opiates,” “oxymorphone,” as well as the pharmacologically ambiguous terms “narcotic” and “narcotics” that have sometimes been used in the past, to identify locally-stored death certificates that suggested an opioid- or heroin-involved death. Such cases were those death certificates that included any keyword in any of the following certificate fields:

- cause 1A
- cause 1B
- cause 1C
- cause 2
- Primary Cause
- Secondary Cause

Death certificates meeting one of those criteria are here considered “opioid-related” or “heroin-related,” respectively. As heroin is a type of opioid, the list of opioid-related keywords includes all the heroin-related keywords.

For some deaths, the cause may still be under investigation; the more recent the death, the more likely this is to be the case. This could show up in a death certificate in a number of ways. The word “pending” or a variant of it might appear among the listed causes. Or there may be no listed cause, i.e. all the cause fields are blank. Both of these phenomena are tallied in this report.

### 3 Results

The database contains 30359 usable records, with 0 excluded for implausible dates. The earliest death certificate in the collection is from February 1999, while the latest is from March 2017.

The numbers of opioid-involved and heroin-involved deaths are shown in Table 1. Receipt and recording of data locally prior to about 2010 were incomplete, so those years are not shown.

In Table 1, “pending” means that at least one of the cause-of-death fields contained the word “pending” or a variant of it, whereas “no listed causes” means that all the cause-of-death fields were blank.

Table 1: Total death certificates, and certificates involving opioids in general or heroin in particular, in Broome County. Asterisks indicate counts less than 10.

year	total death certificates	opioid-involved	heroin-involved	pending	no listed causes
2010	1904	11	*	11	1
2011	2020	11	*	24	0
2012	1940	15	*	1	7
2013	2019	20	*	2	2
2014	1945	33	10	1	3
2015	2044	31	11	0	10
2016	1916	57	25	4	19
2017	350	*	*	5	8

## 4 Limitations

There are several potential problems with computer-searching of free text cause-of-death descriptions, the method used in this report:

- Many recent deaths have no listed cause, or are listed as of “pending” cause, as the investigation continues. As long as the cause is missing or “pending,” these deaths will not be counted in this report as opioid- or heroin-related.
- Sometimes the cause-of-death words or phrases that certifiers use are vague or uninformative, like “cardiopulmonary arrest.” Even if such a death was in fact opioid-related, it would not get counted by the method used here if no other, more specific, information was written on the death certificate.
- The cause information on some death certificates may not have been entered into the computer spreadsheet that is the source data for this report. That tended to be more the case in years past, and less so in recent years.

# Prehospital use of naloxone in the Susquehanna Emergency Medical Services Region, from January 2013

Christopher W. Ryan, MD MS  
Medical Director, Broome County Health Department

March 30, 2017

## 1 Background

### 1.1 Opioids

Opioids (preferred over the term “narcotics”) are chemicals that bind to opioid receptors in the brain, causing a variety of effects: euphoria, relief of pain, and respiratory depression being clinically the most relevant. Opioids also affect other organs; for example, acting on the colon they cause constipation.

The primary *natural opioids* derived from opium poppies are morphine and codeine. These can be chemically modified to yield *semi-synthetic* opioids such as hydromorphone, hydrocodone, oxycodone, and heroin. Fully *synthetic* opioids include fentanyl, methadone, and tramadol.

Opioids are available for medical use in a variety of forms. Several are available as the sole active ingredient in a tablet. Others are manufactured into tablets containing other analgesics as well, typically acetaminophen or ibuprofen. Typical examples of the latter are Vicodin (hydrocodone plus acetaminophen), Percocet (oxycodone plus acetaminophen), and Vicoprofen (hydrocodone plus ibuprofen). Some are available as sustained-release tablets that permit less-frequent dosing. Some are available in formulations that can be absorbed through the lining of the mouth, useful in patients who cannot swallow. One, fentanyl, is available in a patch, from which the medicine is absorbed through the skin. Several opioids are available in injectable form, used primarily for hospital inpatients. Patients suffering from opioid addiction have developed a variety of other, creative, methods of administration, such as dissolving tablets for intravenous injection, or chewing fentanyl patches.

Regardless of formulation, all opioids exert their effects by binding to opioid receptors, and all have similar effects. They vary mainly in per-milligram potency, in the time course of their actions (rapidity of onset, duration of action), and in their method and rate of elimination from the body. For dosing calculations, milligrams of one opioid are often converted to milligrams of morphine. So-called “morphine equivalents” have come to serve as the “universal currency” for opioids.

Because of their euphoric effects, opioids are subject to abuse, and patients can become addicted to them. Patients, whether addicted or not, can sometimes overdose on opioids. Patients can overdose with their own prescribed opioids, another person’s prescribed opioids, or non-prescribed opioids (eg heroin). The most worrisome consequence of opioid overdose is respiratory depression, which can result in death.

Opioid effects can be reversed by a drug called naloxone (also known as Narcan). Naloxone has been used for over 30 years, in hospitals and in the field by EMS crews, to treat patients who are suspected of having overdosed on opioids and are breathing inadequately as a result. Intravenous naloxone is used by Advanced Emergency Medical Technicians (AEMT) and paramedics in the field to treat patients they believe are suffering ill-effects from opioids. In our region, this use is guided by well-structured treatment protocols promulgated by the New York State Department of Health and



the Susquehanna Regional Emergency Medical Advisory Council, which sets pre-hospital treatment protocols for all EMS agencies in the Susquehanna Emergency Medical Services region.

For all practical purposes, naloxone has no other effect and no other clinical use. Thus pre-hospital administration of naloxone by EMS personnel can serve as a useful, albeit imperfect, indicator of opioid overdose.

Recently, intra-nasal naloxone has been issued widely to law enforcement officers, basic Emergency Medical Technicians, firefighters, family and friends of opioid addicts, and others, after undergoing training in its use. The intent has been to speed the delivery of this medicine to patients who need it.

## 1.2 Pre-hospital patient care reports

The Susquehanna Emergency Medical Services region (SREMS) is an area defined by New York State Department of Health to encompass Broome, Tioga, and Chenango counties. Roughly speaking, the purpose of EMS regions is to coordinate among EMS agencies and hospitals, so as to improve pre-hospital care in those regions. One major activity of SREMS, since the early 1990s, has been the operation of a region-wide electronic database of patient care reports (ePCR.) The system was an in-house creation of SREMS programmers. All EMS agencies in the region participated in the in-house product. An ePCR was generated for every patient cared for by EMTs and paramedics; it served as a patient's pre-hospital medical record, where all assessments and interventions were recorded. Around September 2012, a transition began to a database product from a commercial vendor called ImageTrend. The ImageTrend database was up and running for nearly all EMS agencies in the Region by January 2013.

## 2 Methods

### 2.1 Pre-hospital use of naloxone

Electronic patient care reports that recorded administration of naloxone were retrieved from ImageTrend database. Duplicate records were excluded to the extent possible by using the unique identifying number that each ePCR receives. Thus each record in the analyzed dataset should represent one patient who, on one EMS call, received naloxone.<sup>1</sup> Records were aggregated into monthly.

## 3 Results

The query returned 1408 unique patient-incidents between and including Jan 2013 and Feb 2017, for an overall mean monthly frequency of 28.2 episodes of naloxone use. Assuming a static population of the tri-county region equal to that of the 2010 US Census (302,202), this yields an incidence rate, averaged over the entire period, of 9.3 uses of naloxone per 100,000 people per month. However, monthly rates have varied from 3 to 26 per 100,000 and have been trending upward, but with much month-to-month fluctuation.

Trends in the monthly count of naloxone incidents are displayed in Figure 1. More detail is shown in Figure 2.

64% of patients were male. The age distribution of patients is shown in Figure 3 and does not vary appreciably by sex. The bulk of the patients are between 20 and 50 years of age.

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<sup>1</sup>It is possible for a given patient to be the subject of repeated EMS responses; such a patient would receive a different ePCR identifying number for each response, and those numbers would be unique. Conversely, it is possible for a single incident to involve more than one patient; in such an incident, each patient's ePCR would receive a different ePCR identifying number, and those numbers would be unique.

Table 1: Type of location for naloxone incidents. The categories of type of location are specified by the National EMS Information System. Residence/home may mean the patient’s, but could mean someone else’s.

Type of location	Frequency
Residence/Home	1136
Street or Highway	126
Trade or Service (Business, bars, restaurants, etc.)	65
Other Location	52
Public Building (schools, gov, offices)	48
Health Care Facility (clinic, hospital, nursing home)	43
Residential Institution (nursing home, jail/prison)	21
Industrial Place and Premises	9
Place of Recreation or Sport	9
Unspecified place	6
Farm	1
Lake, River, Ocean	1
Not Available	1

Table 1 shows the types of locations where naloxone incidents have occurred. The categories of type of location are specified by the National EMS Information System. “Residence/home” means *someone’s* home—perhaps the patient’s own, perhaps not.

## 4 Discussion and limitations

The SREMS electronic PCR database provides several useful measures of the magnitude of opioid overdose in Broome, Tioga, and Chenango counties. Limitations of pre-hospital naloxone use as an indicator include:

- For some overdose patients, EMS may never be called.
- Overdose patients obviously dead and unsalvageable at the scene may not receive any intervention, and thus would not be picked up by a query for patients receiving naloxone.
- Not all patients given naloxone in the field have in fact overdosed on opioids—their unconsciousness or respiratory depression may be due to some other cause.
- Conversely, some patients suffering opioid overdose may not have been given naloxone in the field.
- Naloxone is now also deployed widely with law enforcement officers; their uses of naloxone are not recorded reliably in the EMS database.

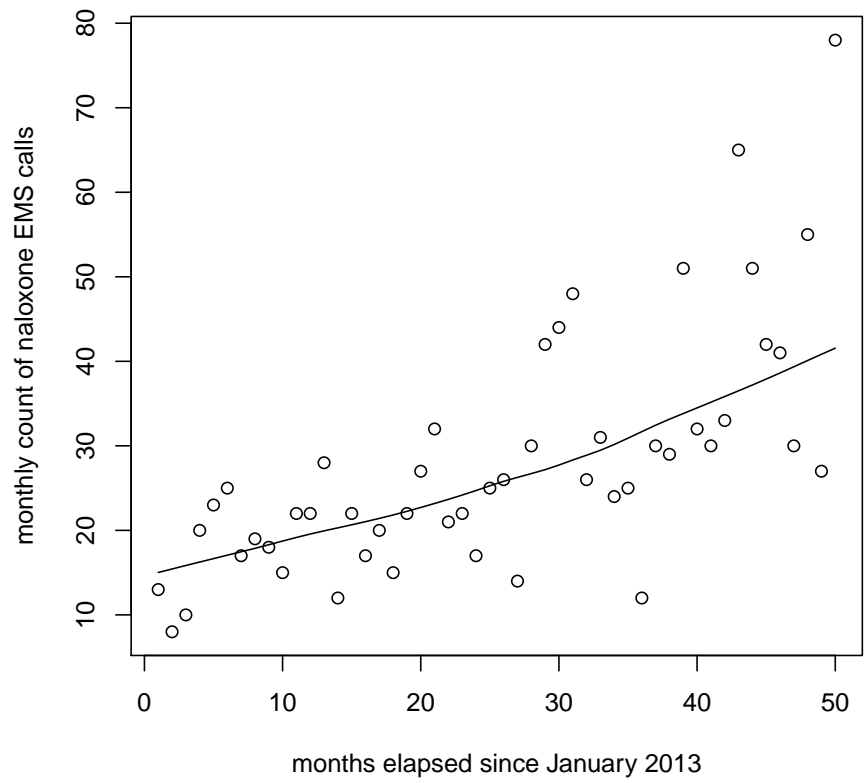


Figure 1: Temporal trend in the monthly number of patients receiving naloxone from EMS, in the Susquehanna EMS Region, since January 2013. Notable findings are the increasing overall trend, and the increasing month-to-month variation.

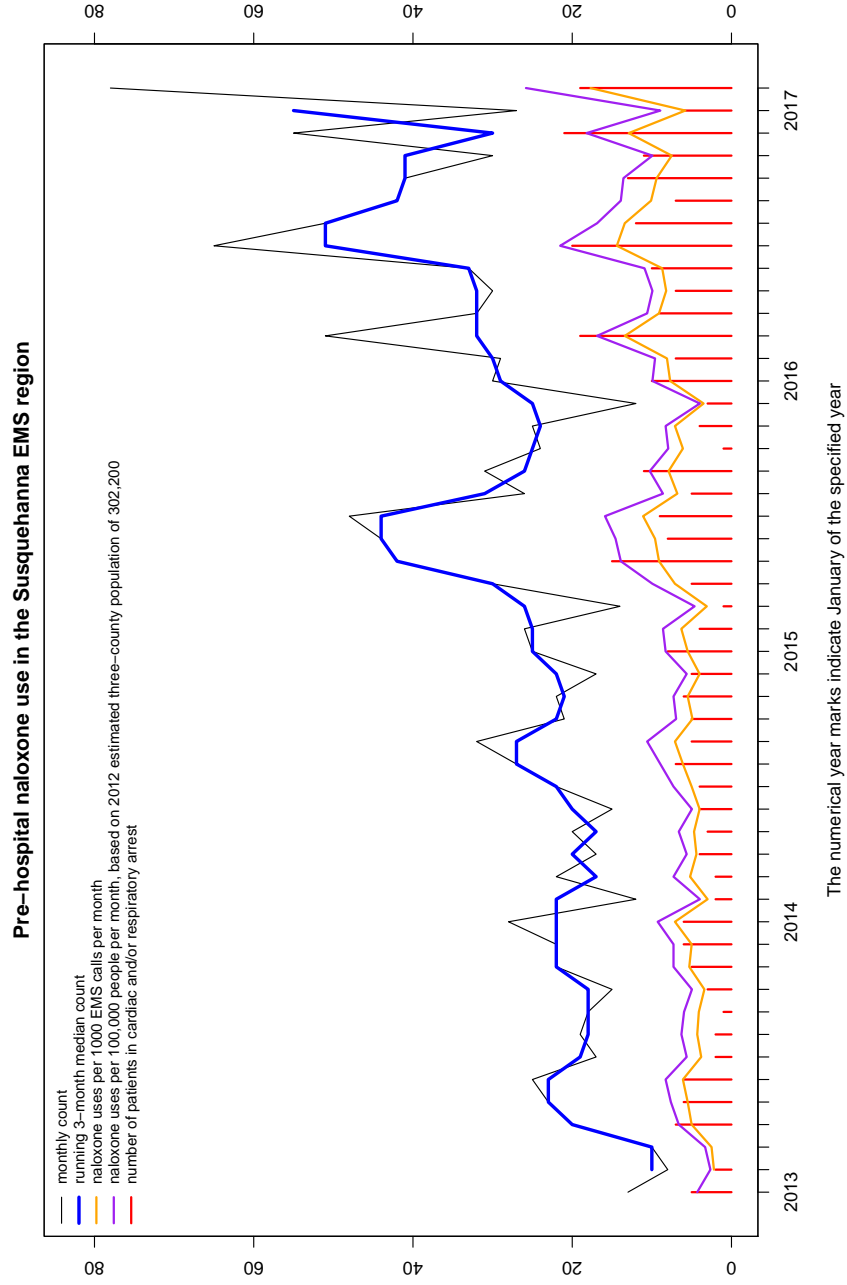


Figure 2: Monthly number of patients receiving naloxone in Broome, Tioga, and Chenango counties is shown in black. A three-month moving median is shown in blue. The monthly rate of naloxone use per 1000 EMS calls is shown in orange, and the monthly frequency of cardiac or respiratory arrest in which naloxone was used is shown in red.

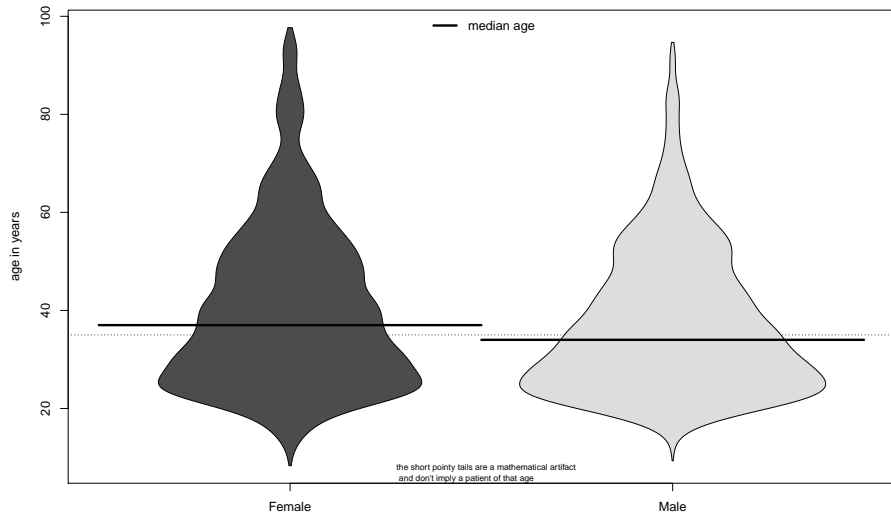


Figure 3: Age distribution of patients receiving naloxone from EMS crews in the Susquehanna EMS Region, January 2013 to December 2016, inclusive. The plot shows the overall nature of the age distribution; the upper and lower ends of the distributions should not be interpreted as indicating there was a particular patient of that particular age.

# Descriptive epidemiology of opioid overdose deaths in Broome County, based on death certificate data files from New York State Department of Health’s Vital Statistics Division, using the Prevention for States program case definition

Christopher W. Ryan, MD MS

April 6, 2017

## 1 Background and Methods

Opioid overdoses, including fatal overdoses, are increasing nationwide. Broome County has not been spared from this phenomenon. It is therefore of interest to monitor the magnitude of the problem in our county.

The frequency of deaths from opioid overdose is one of several indicators that can provide insight into the magnitude of the opioid overdose problem locally. This report describes the number of opioid overdose deaths in Broome County between 2012 and 2015 inclusive.

Electronic death certificate files pertaining to Broome County residents were obtained from New York State Department of Health Vital Statistics system. Note that non-Broome residents who die in Broome County are not included in these data. Death certificates with missing or implausible ages at death were excluded; this is almost always due to a missing birthdate.

The electronic death certificate records include primary and, if necessary, multiple contributing causes of death for each decedent. The causes are coded according to ICD-10. ICD-10 is a hierarchical or nested classification system. The codes are alphanumeric. The first three characters indicate a general category (for example, T40 for “Poisoning by narcotics and psychodysleptics [hallucinogens].” Additional characters provide more specificity (for example T401 for “Poisoning by narcotics and psychodysleptics [hallucinogens], heroin.”

*There is no simple checkbox on a death certificate to indicate that the cause of death was opioid overdose. Making that distinction depends entirely on which ICD-10 codes one chooses to include in one’s definition.* There is not yet any national, universally-accepted ICD-10-based case definition for a fatal opioid overdose. However, a rough consensus is beginning to develop around the case definition used in the Prevention for States program. Prevention for States (PFS) is a federally-funded demonstration project intended to help the 29 participating states address the problem of fatal prescription drug overdose ([http://www.cdc.gov/drugoverdose/states/state\\_prevention.html](http://www.cdc.gov/drugoverdose/states/state_prevention.html)). In spring of 2016, the program published a list of surveillance indicators related to drug overdose—the Prevention for States Indicator Support Toolkit. Version 1.1 was published mid-July 2016.

The PFS case definition of fatal opioid overdose is a death in which:

- the *underlying* cause of death is listed as one of the following ICD-10 codes:
  - X40-X44: Accidental poisonings by drugs
  - X60-X64: Intentional self-poisoning by drugs
  - X85: Assault by drug poisoning
  - Y10-Y14: Drug poisoning of undetermined intent
  
- *AND*
  
- One of the following ICD-10 codes appears anywhere among any of the (possibly multiple) causes of death:
  - T40.0: Opium
  - T40.1: Heroin
  - T40.2: Natural and semisynthetic opioids T40.6: Other and unspecified narcotics
  - T40.3: Methadone
  - T40.4: Synthetic opioids other than methadone
  - T40.6: Other and unspecified narcotics

The Prevention for States case definition is used in this report. It should be noted that this is a two-part definition, and both parts need to be true for a death to be considered a case. This will inevitably result in lower counts than a one-part case definition, in which only one criterion needs to be true for a death to be considered a case. It should also be noted that deaths of unknown underlying cause (ICD-10 code of R99) are not included in the Prevention for States case definition, even if an opioid-related ICD-10 code appears in one of the secondary cause fields.

## 2 Results

There were 8325 available death certificates for the years 2012 to 2015, inclusive. Of those, 20 were excluded from the analysis due to implausible or missing ages at the time of death.

Among the analyzed death certificates, 78 met the Prevention For States case definition of a fatal opioid overdose. Annual counts are shown in Table ??.

Half of the cases were between the ages of 27 and 48, with the remaining half split equally above and below that age range.

Locations of death are shown in Table ??.

While opioid overdose is a serious and growing problem nationwide, and is the subject of this report, it must be noted that people can overdose and die from a wide variety of substances. Often numerous drugs are implicated simultaneously in a fatal overdose. The Prevention for States case definition of fatal opioid overdose is quite specific: fatal drug overdoses in which no opioid drug is listed on the death certificate will not be counted in this definition. So for example, if the underlying cause of death was indeed listed as a drug overdose, but a benzodiazepine alone is listed, or if the involved drug is left as “unknown” or “unspecified,” that case would not be counted here. Among the 8325 death certificates analyzed, there were 37 cases of overdose on unspecified drugs that did not meet the definition for opioid overdose

and were thus not counted as such. Presumably, some of those cases may have involved opioid overdose. There were also 4 cases of overdose on benzodiazepines that did not meet the definition for opioid overdose and likewise were not counted as such.

### 3 Discussion

The annual frequency of opioid overdose deaths has been increasing in Broome County, as it has been nationwide. Most of these deaths occur between the ages of 20 and 50. Most of them occur in the decedent's home or some other private residence, with the hospital emergency department being the next most common location.

The results of any epidemiological analysis depend greatly on the case definition(s) used. In contrast to, say, infectious diseases, there is as yet no universally agreed upon case definition for fatal opioid overdose. However, the definition used here, promulgated by the CDC's Prevention for States initiative, is gaining credence. It is a fairly strict definition with two criteria that must be met simultaneously. Therefore, some deaths in which opioids were detected on autopsy but in which overdose was not considered the *underlying cause of death* do not meet the Prevention for States case definition and will not be counted in this analysis. Heroin users can suffer the whole gamut of life-ending injuries or illnesses (e.g. heart attack, stroke, ruptured aortic aneurysm, etc) *unrelated or incidental to their heroin use*

Other case definitions may be reasonable. A more liberal, "less demanding" case definition would of course yield higher numbers but would also include some fatal overdoses from drugs other than opioids. We should always be clear about the phenomenon we are interested in measuring, for example *opioid* overdose versus drug overdose *in general*. Both are worth measuring, but they are not the same thing.

Death certificates containing the ICD10 code for "unspecified drugs" are not very informative. Measures to increase the specificity of the language and codes used on death certificates should be encouraged.



Table 1: Annual frequency of opioid overdose death in Broome County, based on electronic death certificate files from New York State Department of Health Vital Statistics Division, using the case definition from the Prevention for States Indicator Support Toolkit, version 1.1, published July 2016. A blank indicates that year of death was missing.

year	number of deaths
2012	13
2013	17
2014	23
2015	25

Table 2: Locations of opioid overdose deaths in Broome County, based on electronic death certificate files from New York State Department of Health Vital Statistics Division, using the case definition from the Prevention for States Indicator Support Toolkit, version 1.1, published July 2016

location	number
Decedent's residence	43
Hospital - ER	16
Other private home	9
Hospital inpatient	6
Other non-institution	3
Hospital outpatient	1
Hospital - DOA	0
Nursing home	0
Assisted Living and Adult Homes	0
Hospice Facility	0
(NYC only) Not in hospital	0
Other institution	0