



Drug and Alcohol Intoxication Deaths in Maryland, 2007-2011

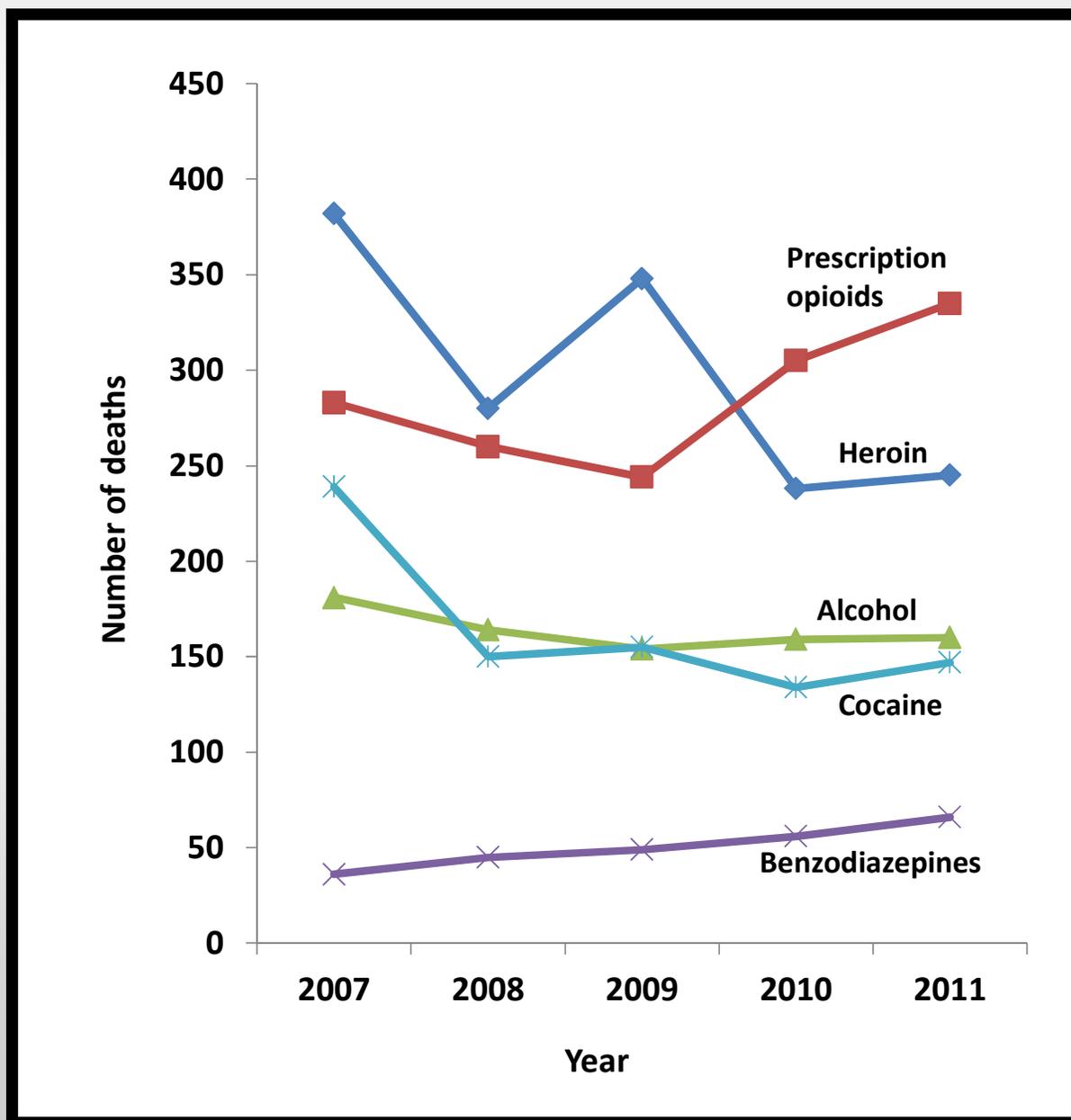


Table of Contents

I. Methods	2
II. Summary of findings	6
III. Charts	9
A. Total drug intoxication deaths	9
B. Intoxication deaths by substance.....	13
C. Opioid-related deaths.....	15
1. Heroin-related.....	17
2. Prescription opioid-related.....	21
a. Oxycodone.....	26
b. Methadone	30
c. Fentanyl	34
d. Tramadol.....	38
D. Alcohol-related deaths	42
E. Cocaine-related deaths.....	46
F. Benzodiazepine-related deaths	50
G. Emerging trends—2012	54
H. Death rates—2007-2011.....	56
IV. Tables	59
Table 1. Total Number of Intoxication Deaths by Place of Occurrence, Maryland, 2007-2011	60
Table 2. Number of Intoxication Deaths by Substance and Place of Occurrence, Maryland, 2007-2011	61

METHODS

Introduction

The purpose of this report is to describe trends in unintentional drug intoxication deaths occurring in Maryland during the period 2007-2011. Trends are examined by age at time of death, race/ethnicity, gender, place of death and substances related to death. Crude and age-adjusted mortality rates are shown by place of residence for the period 2007-2011. Preliminary data through September 2012 give a preview of emerging trends.

The methodology for reporting on drug-related intoxication deaths in Maryland was developed by the Vital Statistics Administration (VSA) of the Maryland Department of Health and Mental Hygiene (DHMH) with assistance from the DHMH Alcohol and Drug Abuse Administration, the Office of the Chief Medical Examiner (OCME) and the Maryland Poison Control Center. Assistance was also provided by authors of a 2008 Baltimore City Health Department report on intoxication deaths.¹

Sources of data

Data for intoxication deaths occurring in Maryland were obtained from OCME. Maryland law requires OCME to investigate all deaths occurring in the State that result from violence, suicide, casualty, or take place in a suspicious, unexpected or unusual manner. In these instances, information compiled during an investigation is used to determine the cause or causes of death. Depending on the circumstances, an investigation may involve a combination of scene examination, witness reports, review of medical and police reports, autopsy, and toxicological analysis of autopsy specimens. Toxicological analysis is routinely performed when there is suspicion that a death was the result of drug or alcohol intoxication.

Information on race/ethnicity was missing for a small number of records provided by OCME and was obtained from death certificate data files maintained by VSA. County of residence was also obtained from death certificate records since the data appeared to be more accurate than the data available to OCME at the time of their investigation. Information for Maryland resident deaths occurring in other jurisdictions was obtained from death certificate data received by VSA through an interjurisdictional exchange agreement.

Identification of drug-related intoxication deaths

For the purpose of this report, a drug-related intoxication death was considered to be a death that was the result of recent ingestion or exposure to alcohol or another type of drug, including heroin, cocaine, phencyclidine (PCP), prescription opioids, benzodiazepines, methamphetamines and other prescribed and unprescribed drugs. Records were selected

¹ Office of Epidemiology and Planning, Baltimore City Health Department. Intoxication Deaths Associated with Drugs of Abuse or Alcohol. Baltimore City, Maryland: Baltimore City Health Department. January 2007.

for inclusion if the manner of death was classified as either accidental (e.g., unintentional) or of undetermined intent. Manner of death is classified as undetermined if the medical examiner does not have sufficient evidence to definitively determine whether a death was natural, accidental, or the result of suicide or homicide.

The Office of the Chief Medical Examiner provided all records to VSA for which the text of the cause of death included one or more of the following terms: poisoning, intoxication, toxicity, inhalation, ingestion, overdose, exposure, chemical, or use. All records were then reviewed by VSA and any records that were not drug-related intoxication deaths, such as deaths due to smoke inhalation, carbon monoxide intoxication, cold exposure, and chronic use of alcohol or other drugs, were excluded. Records indicating that the manner of death was natural, suicide, or homicide were also excluded.

There are several reasons for the small differences in counts of intoxication deaths in this report and earlier Departmental reports. First, the terms listed above that were used by OCME to identify possible intoxication deaths represent an expansion of terms used in the past to identify these deaths. This resulted in the identification of records that had not been included in earlier reports. Second, since it can take OCME 90 days or longer to determine the cause of death in complicated cases, a small number of deaths may not have been included in previous reports because the fact that they were intoxication-related was not known until long after death occurred. Finally, prior reports may have included a small number of cases that were initially thought to be intoxication-related, but after thorough review of all findings were determined to have resulted from other causes.

Since the current methodology will be used in future Departmental reports, the data included in this report should serve as a baseline for comparison with future data. However, counts may change slightly over time as updated OCME data become available.

Analyses

Trends in the total number of drug intoxication deaths occurring in Maryland during the years 2007-2011 were analyzed by age group, race/ethnicity, gender, and place of occurrence of death. Number of deaths by place of occurrence was computed by jurisdiction and by region, categorized as follows:

Western Area	Central Area	Southern Area	Eastern Shore Area
Garrett County Allegany County Washington County Frederick County Montgomery County	Baltimore City Baltimore County Anne Arundel County Carroll County Howard County Harford County	Calvert County Charles County St. Mary's County Prince George's County	Cecil County Kent County Queen Anne's County Caroline County Talbot County Dorchester County Wicomico County Somerset County Worcester County

Trends were also examined for deaths related to the following substances:

1. Opioid-related
 - a. Total
 - b. Heroin-related
 - c. Prescription-related
 - i. Total
 - ii. Oxycodone-related
 - iii. Methadone-related
 - iv. Fentanyl-related
 - v. Tramadol-related
2. Alcohol-related
3. Cocaine-related
4. Benzodiazepine-related

Counts of the number of total deaths and deaths related to classes of substances or specific substances are shown in Tables 1 and 2. Trends are summarized in Figures 1 through 43.

Identification of total opioid-related deaths

Opioids include heroin, an illicit drug, and prescription drugs such as morphine, oxycodone, hydrocodone, hydromorphone, methadone, fentanyl, tramadol and codeine. An opioid was considered to be associated with a death if a specific opioid drug was indicated in the cause of death. If the cause of death did not identify a specific drug (e.g., the cause of death indicated “narcotic overdose”), OCME toxicology results were reviewed to determine whether the presence of any opioid drug was detected. If so, the cause of death was considered to be opioid-related, regardless of the level of the drug.

Identification of heroin-related deaths

Cause of death information, toxicology results, and scene investigation reports were reviewed to identify deaths that were heroin-related. These deaths were classified as either “confirmed” or “suspected.” A death was considered to be a confirmed heroin-related death if:

1. “Heroin” was mentioned in the cause of death; or
2. The toxicology screen showed a positive result for 6-monacetylmorphine; or
3. The toxicology screen showed positive results for both morphine and quinine; or
4. The death was identified as heroin-related through scene investigation.

Since heroin is rapidly metabolized into morphine, deaths that did not meet the criteria above, but were associated with morphine through either cause of death information or toxicological results, were considered to be heroin-related. Since it is likely, but not certain, that these deaths are heroin-related, they were labeled ‘suspected’ heroin deaths. The

number of heroin deaths presented in this report includes both confirmed and suspected deaths.

Identification of prescription opioid-related deaths

Prescription opioid-related deaths are defined as deaths that involve one or more prescription opioids, as identified through cause of death information when a specific drug was indicated, and through toxicology results when the cause of death was nonspecific. Counts of prescription opioid-related deaths shown in this report include deaths that may have involved both a prescription opioid and heroin, but not deaths that resulted due to heroin alone. Since a death may be associated with both heroin and one or more prescription opioids, the sum of the number of prescription opioid deaths and the number of heroin deaths is greater than the overall number of opioid-related deaths.

Identification of total benzodiazepine-related deaths

Benzodiazepines are a class of depressants that include drugs such as alprazolam, clonazepam, diazepam and multiple related drugs. The category of benzodiazepine-related drugs in this report includes both benzodiazepines and related drugs, such as zolpidem, which have similar sedative effects.

Emerging trends

Although 2012 data are not yet complete, preliminary data indicate changes in trends related to heroin and prescription opioid-related deaths. These changes are shown in Figure 44.

Rates by county of residence

In order to calculate rates by place of residence, data are needed for all Maryland resident deaths. Since many Maryland residents die outside the State, and OCME is responsible for investigating deaths that occur within the State, complete Maryland resident data are not available through OCME records. VSA receives death certificate data for all Maryland residents who die outside the State through an interjurisdictional exchange agreement. By combining OCME and VSA death certificate data, it was possible to calculate crude and age-adjusted death rates by county of residence for total intoxication deaths. However, since limited detail is provided on substances related to death on death records, rates could not be calculated for specific substances.

SUMMARY OF FINDINGS

Total alcohol and drug intoxication deaths

- A total of 663 alcohol and drug intoxication deaths occurred in Maryland in 2011, the last calendar year for which complete data are available.
- The majority of intoxication deaths occurred among white males between the ages of 45 and 54 years.
- The total number of intoxication deaths fell between 2007 and 2008, and remained relatively stable through 2011. However, the number of deaths has been rising among individuals ages 25-34 years and falling among individuals ages 35-44 years.
- Deaths have been decreasing among blacks and males, and have remained stable among whites and females.
- The majority of deaths occur in Central Maryland, mainly in Baltimore City, Baltimore County, and Anne Arundel County.

Opioid-related deaths

- The number of **heroin**-related deaths fell substantially between 2009 and 2011, while the number of **prescription opioid**-related deaths increased. However, preliminary data for 2012 indicate that this trend has reversed, with the number of **heroin** deaths increasing sharply, and the number of **prescription opioid** deaths falling.
- The number of **heroin**-related deaths was highest among whites, males, and individuals ages 45-54. Rates had been falling in recent years among persons ages 35-54, blacks, and males.
- Although the number of **heroin** deaths is highest in counties in Central Maryland, this is the only area of the State where deaths have been declining in recent years. The greatest decline has been in Baltimore City.
- The number of **prescription opioid**-related deaths increased substantially in Maryland between 2009 and 2011, in large part because of increases in the number of deaths related to methadone and oxycodone.
- The total number of **prescription opioid**-related deaths was highest among whites, males, and individuals ages 45-54. Rates increased between 2009 and 2011 among individuals below the age of 34 and those ages 45-54, as well as among whites, and both males and females.
- The increase in **prescription opioid**-related deaths occurred mainly in Central Maryland, particularly in Baltimore County.
- A total of 92% of all **oxycodone**-related deaths between 2007 and 2011 occurred among whites. The number of deaths has been increasing among whites only, with

similar increases for males and females, and has been rising most rapidly among groups ages 25-34 and 45-54 years.

- The number of **oxycodone** deaths has increased substantially in recent in years in Central Maryland, particularly in Baltimore County. The number of deaths has also been increasing in the Eastern Shore area of the State.
- The number of **methadone** deaths increased substantially between 2009 and 2011 for groups ages 25-34 and 45-54 years. The number of deaths has increased among whites, males and females during this time period. Deaths have also increased in Central Maryland, particularly in Baltimore City.
- The number of deaths related to **fentanyl** remained relatively stable between 2007 and 2011. Ninety percent of **fentanyl**-related deaths occur among white individuals. Most deaths occur in Baltimore County, although the number of deaths in this area declined substantially between 2009 and 2011.
- The number of **tramadol**-related deaths has been increasing, particularly among whites, women, and young adults. **Tramadol**-related deaths are atypical in that they occur more frequently among women than men, and are increasing most rapidly among the younger age groups.

Alcohol-related deaths

- **Alcohol**-related deaths occur most frequently among whites, males, and individuals between the ages of 45 and 54.
- The number of **alcohol**-related deaths has been increasing among young adults between the ages of 25 and 34, and falling among individuals ages 35-44. The number of deaths has also been falling among males.

Cocaine-related deaths

- The number of **cocaine**-related deaths declined substantially from 2007 to 2008, and has remained stable since that time.
- The number of deaths is highest among the 35-54 year old age group, whites, and males. The number of deaths has been declining among blacks and males.

Benzodiazepine-related deaths

- The number of **benzodiazepine**-related deaths increased steadily between 2007 and 2011.
- Over 90% of **benzodiazepine**-related deaths occur among whites, and the number of deaths among this group has been increasing rapidly.
- Deaths have been increasing most rapidly among women, and among individuals ages 25-34 years.
- The number of deaths increased between 2007 and 2011 in both Central and Western Maryland.

Rates by place of residence

- The statewide crude death rate for total intoxication deaths for the period 2007-2011 was 11.9 per 100,000 population, while the age-adjusted rate was 11.5 per 100,000 population.
- Crude death rates ranged from a low of 4.4 per 100,000 population in Montgomery County to highs of 27.4 per 100,000 population in Baltimore City and 24.0 per 100,000 population in Cecil County.
- Age-adjusted death rates ranged from a low of 4.3 per 100,000 population in Montgomery County to highs of 27.7 in Baltimore City and 24.1 in Cecil County.

TOTAL INTOXICATION DEATHS

Figure 1. Total Number of Drug Intoxication Deaths Occurring in Maryland, 2007-2011.

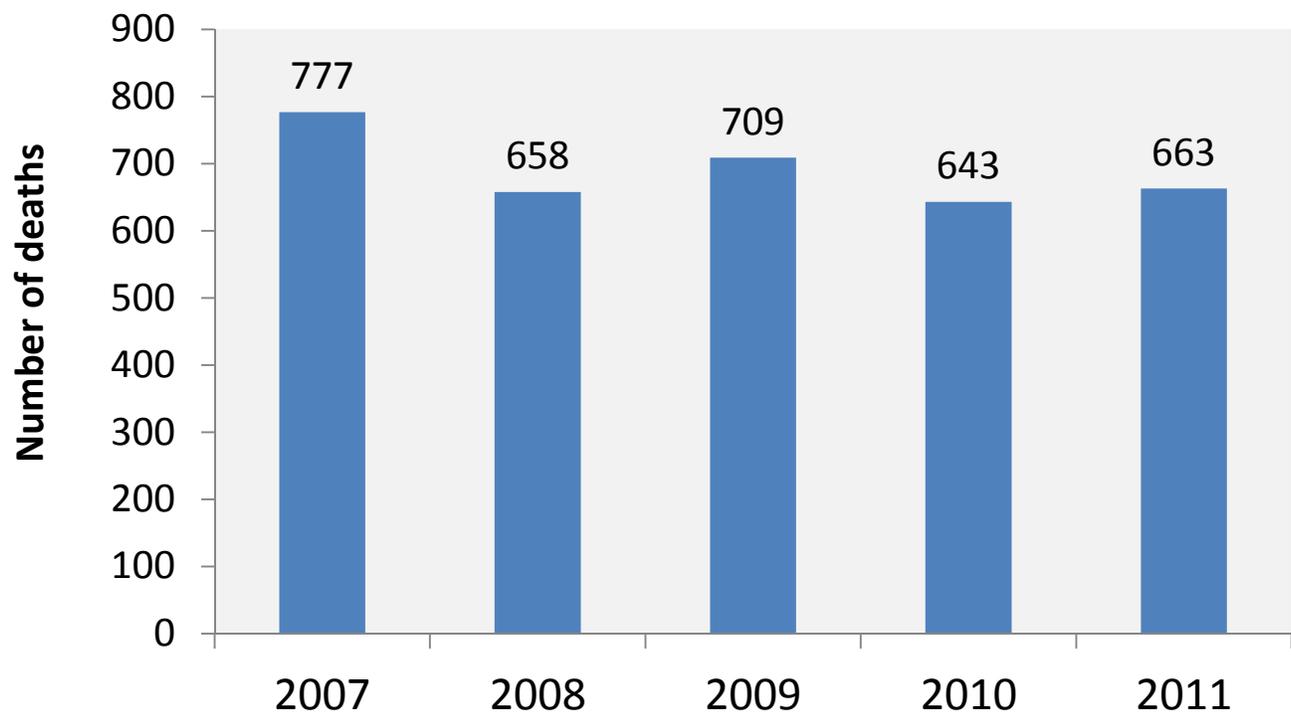


Figure 2. Total Number of Intoxication Deaths Occurring in Maryland by Age, Race/Ethnicity and Gender, 2007-2011.

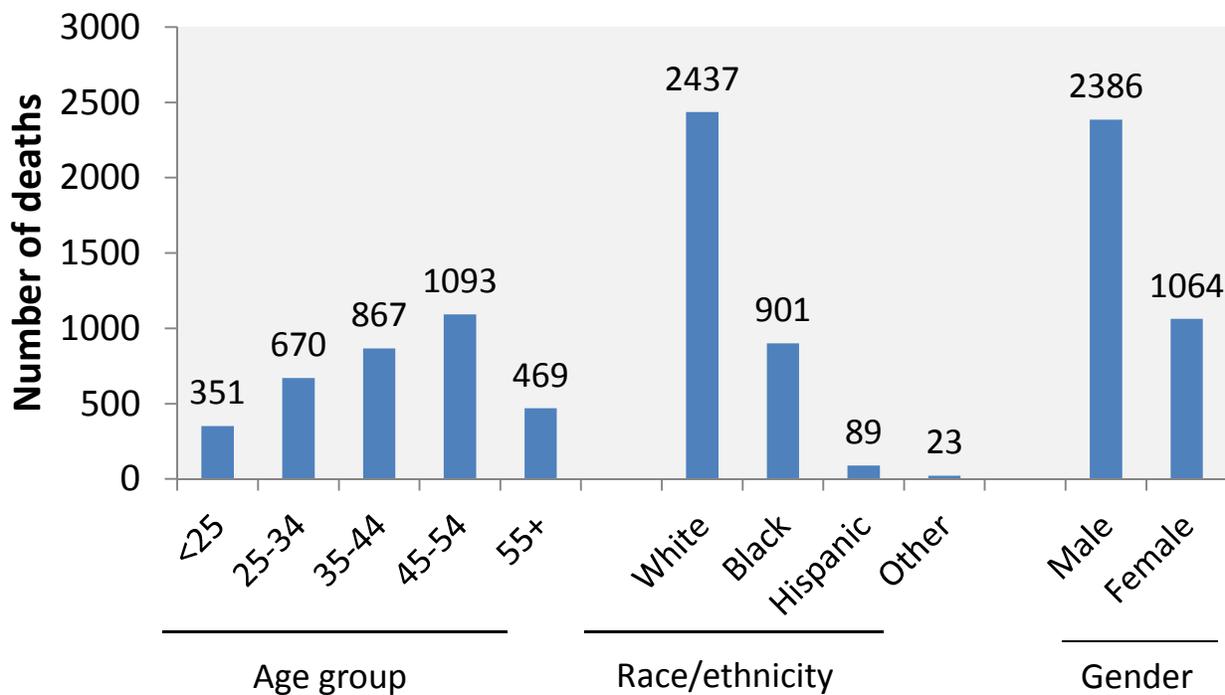


Figure 3. Total Number of Drug Intoxication Deaths Occurring in Maryland by Age Group, Race/Ethnicity and Gender, 2007-2011.

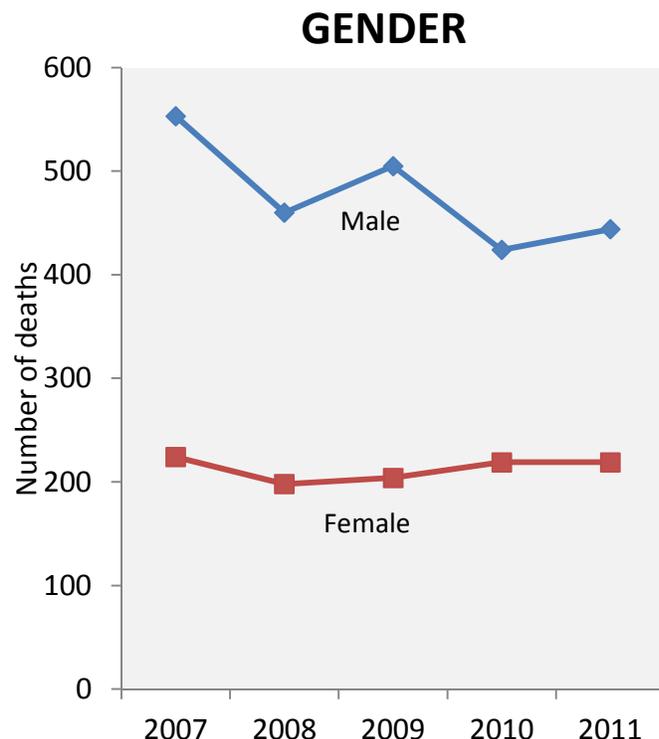
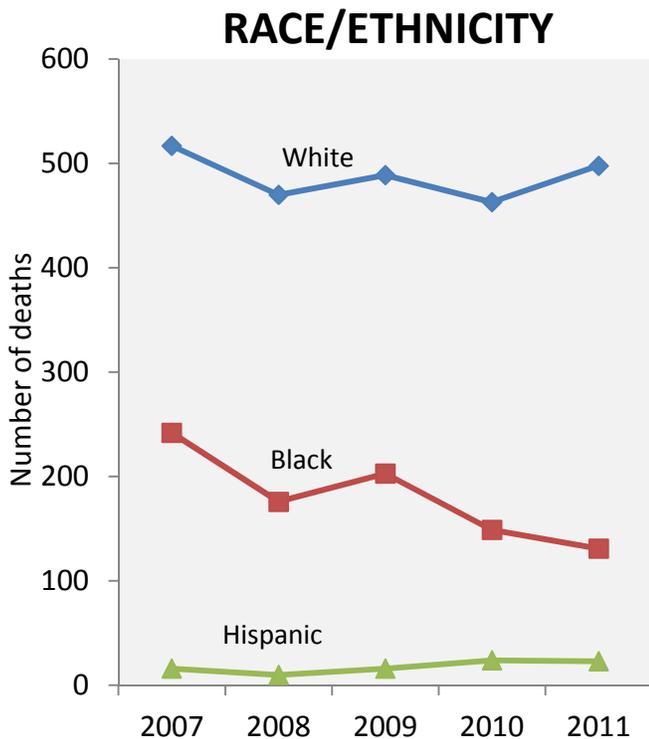
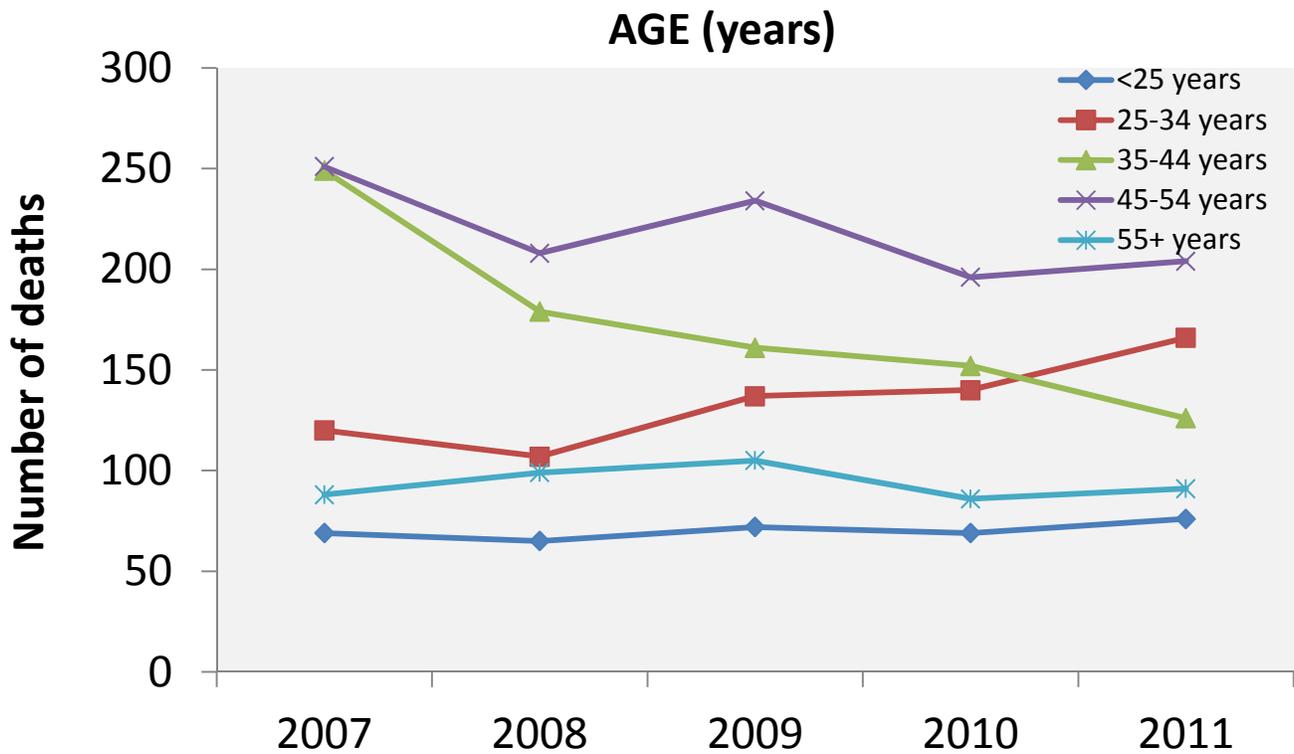
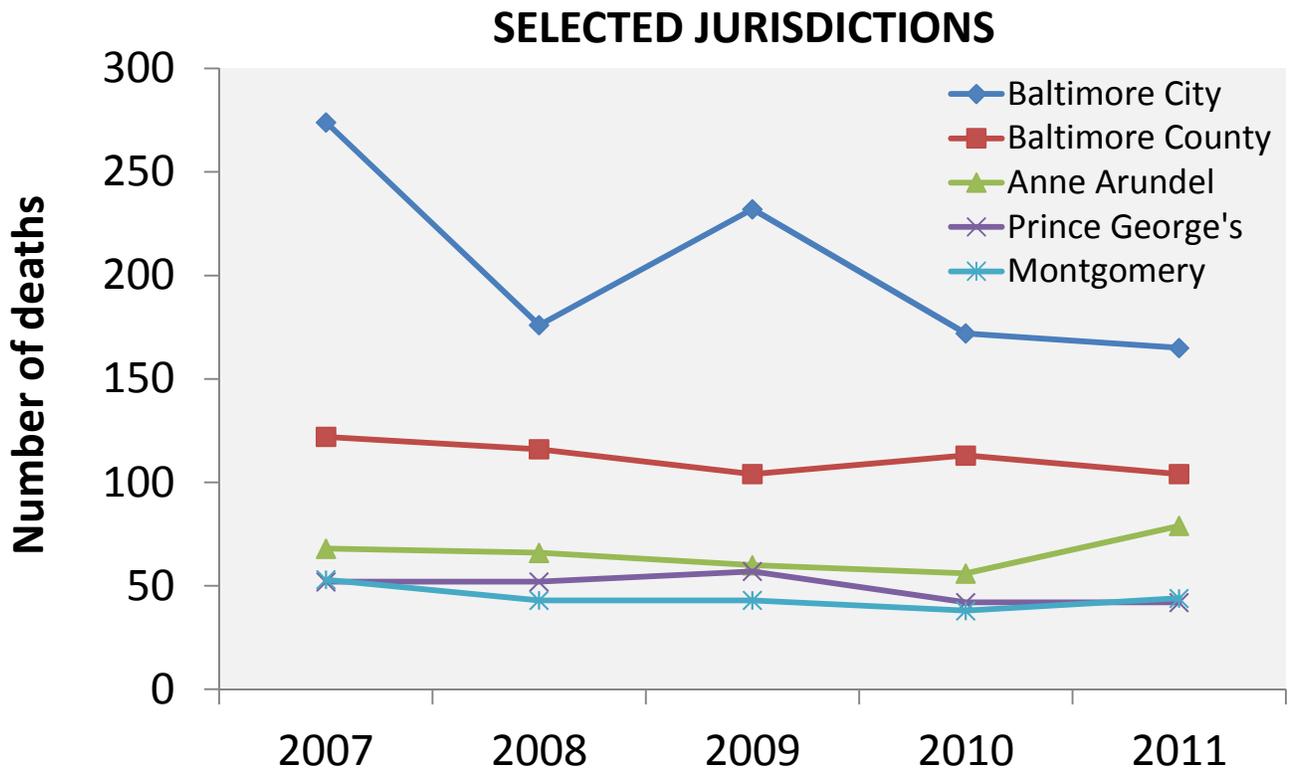
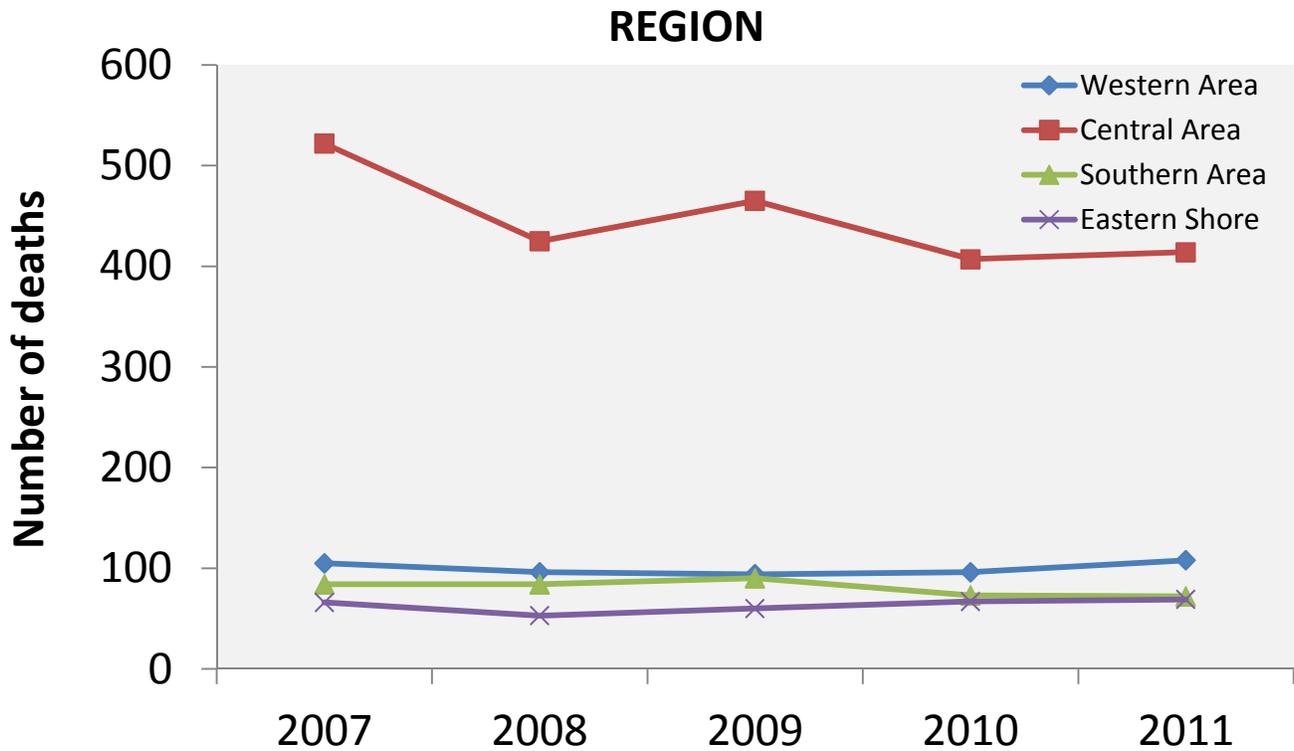
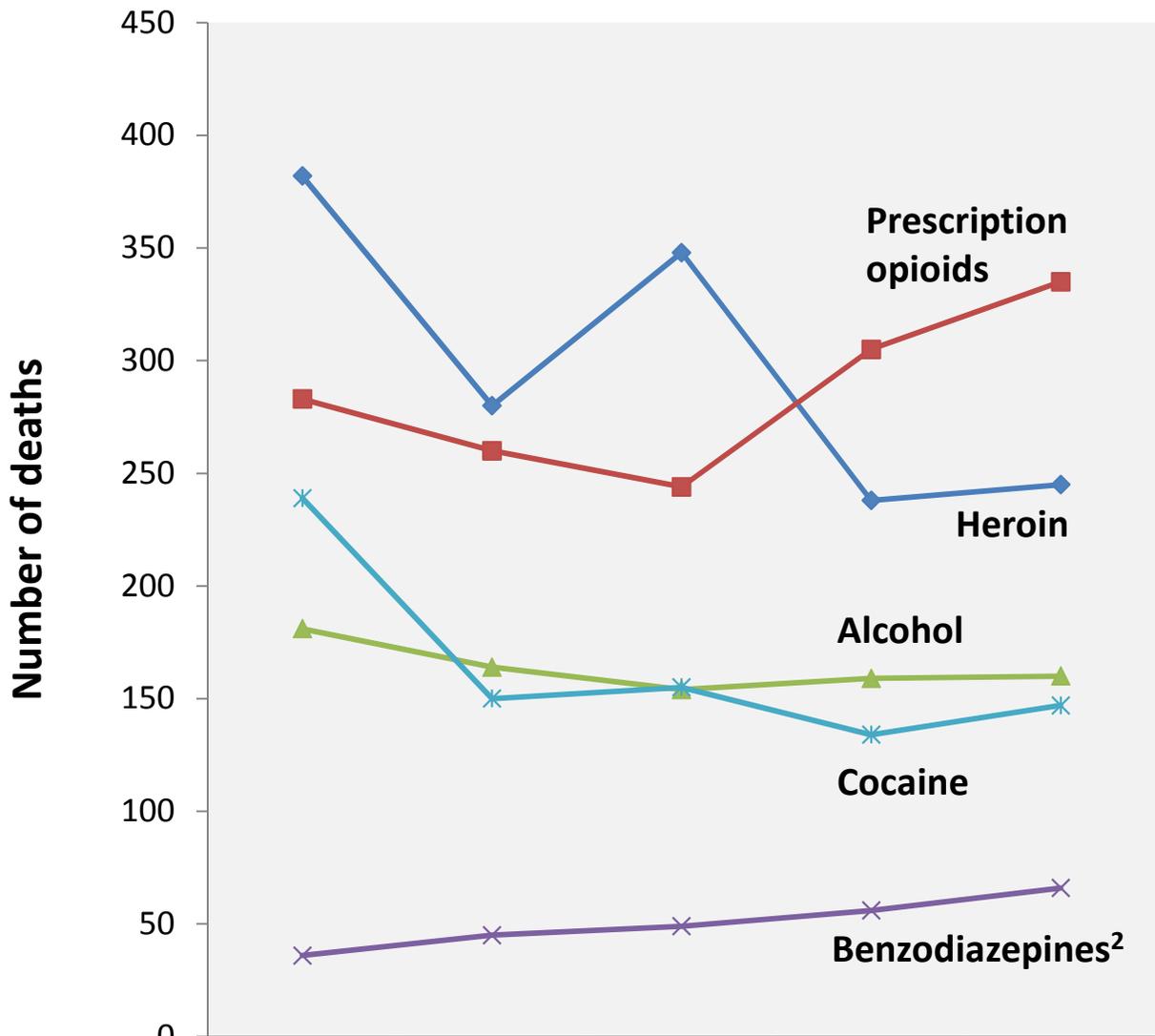


Figure 4. Total Number of Drug Intoxication Deaths by Place of Occurrence, Maryland, 2007-2011.



**DRUG INTOXICATION
DEATHS BY SUBSTANCE**

Figure 5. Total Number of Drug Intoxication Deaths by Selected Substances¹, Maryland, 2007-2011.



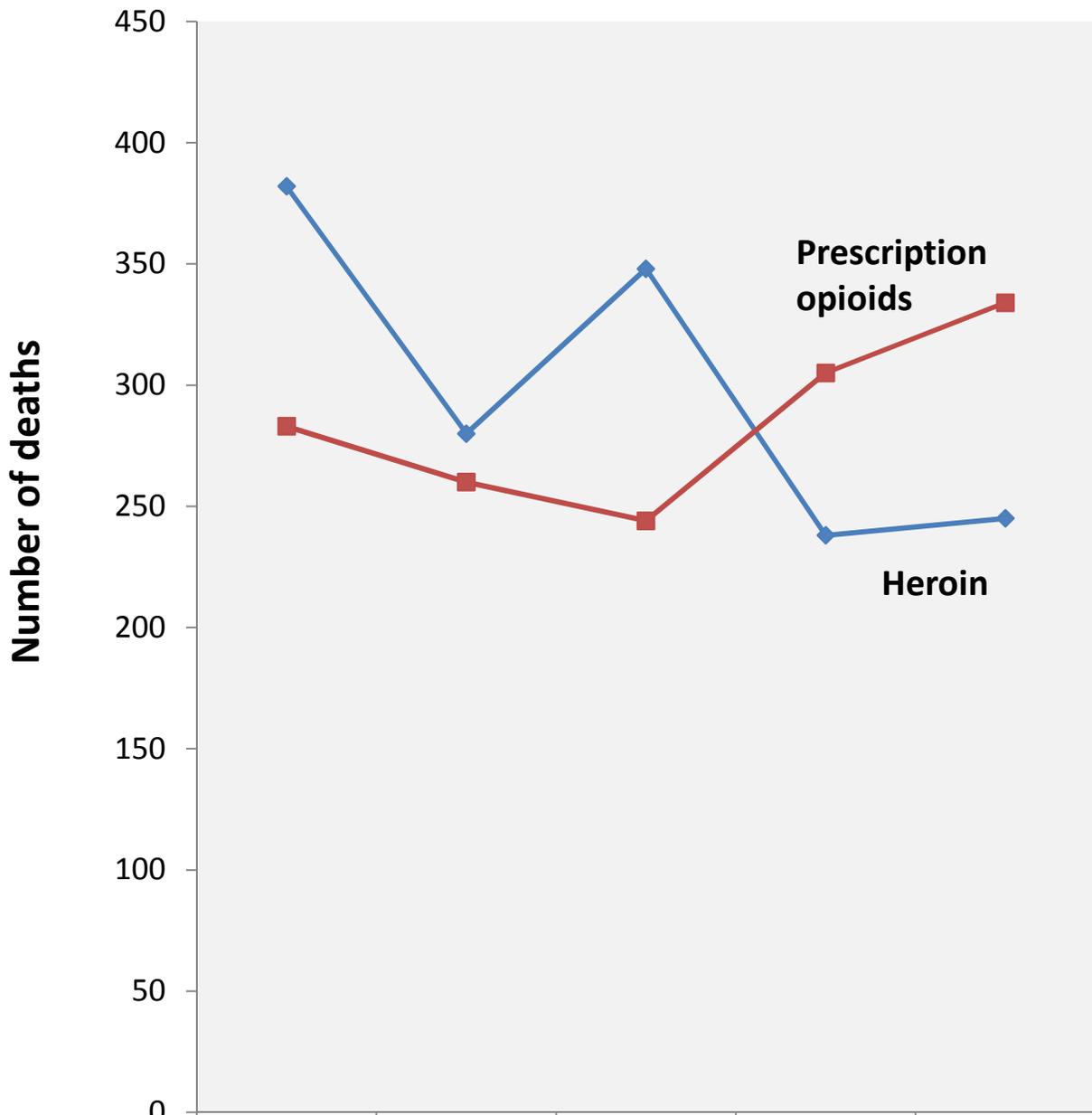
	2007	2008	2009	2010	2011
Heroin	382	280	348	238	245
Prescription opioids	283	260	244	305	335
Alcohol	181	164	154	159	160
Benzodiazepines ²	36	45	49	56	66
Cocaine	239	150	155	134	147

¹Since an overdose death may involve more than one drug, the number of deaths resulting from individual drugs does not sum to the total number of deaths.

²Includes deaths caused by benzodiazepines and related drugs.

OPIOID-RELATED DEATHS

Figure 6. Number of Opioid-Related Deaths Occurring in Maryland by Substance, 2007-2011.



	2007	2008	2009	2010	2011
Heroin	382	280	348	238	245
Prescription opioids	283	260	244	305	334

HEROIN-RELATED DEATHS

Figure 7. Number of Heroin-Related Deaths Occurring in Maryland, 2007-2011.

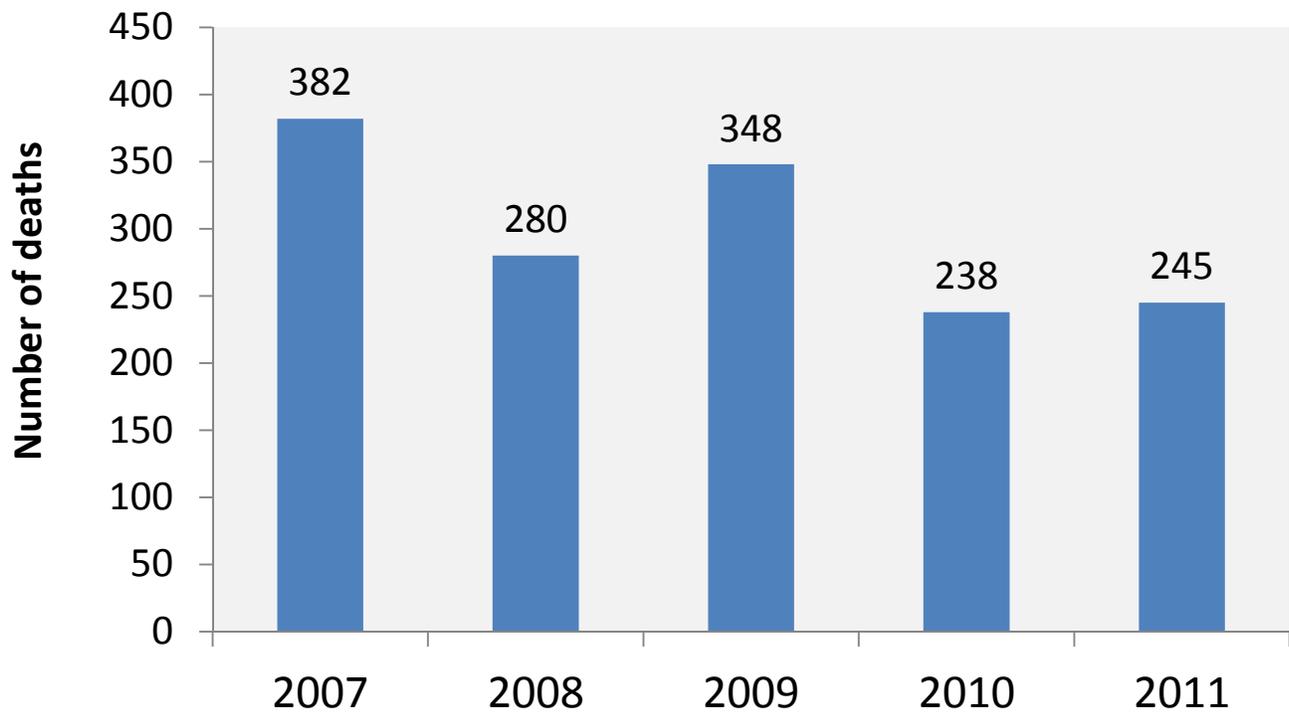


Figure 8. Number of Heroin-Related Deaths Occurring in Maryland by Age, Race/Ethnicity and Gender, 2007-2011.

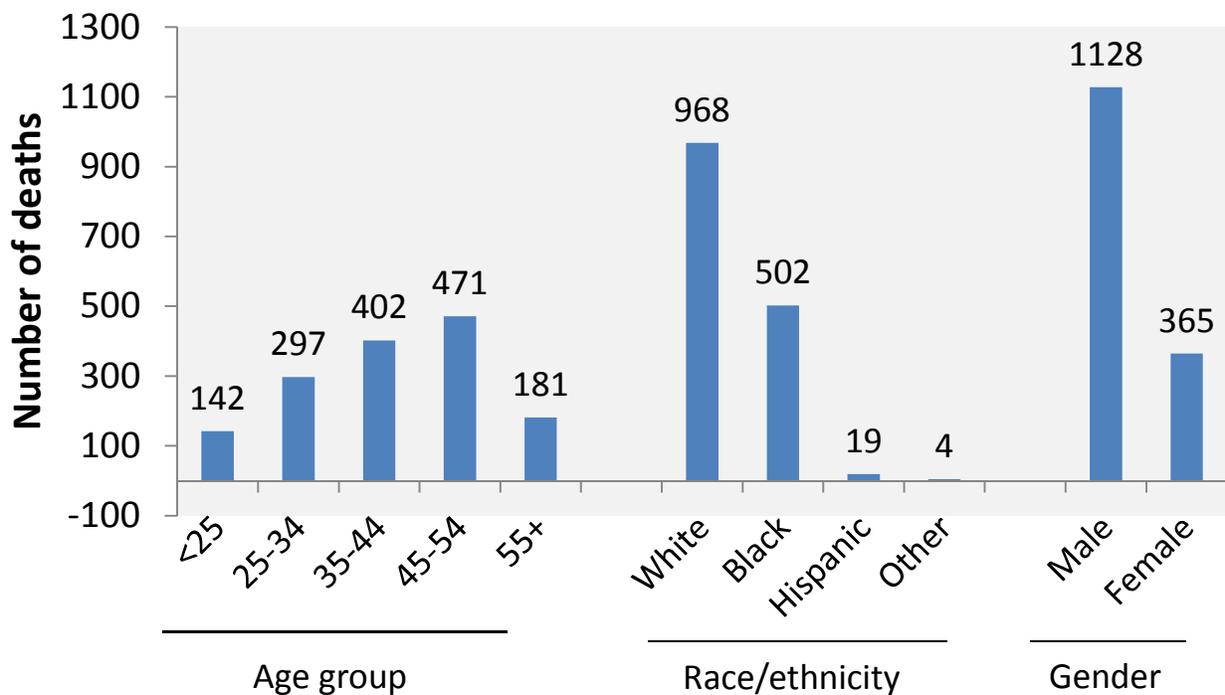


Figure 9. Number of Heroin-Related Deaths Occurring in Maryland by Age Group, Race/Ethnicity and Gender, 2007-2011.

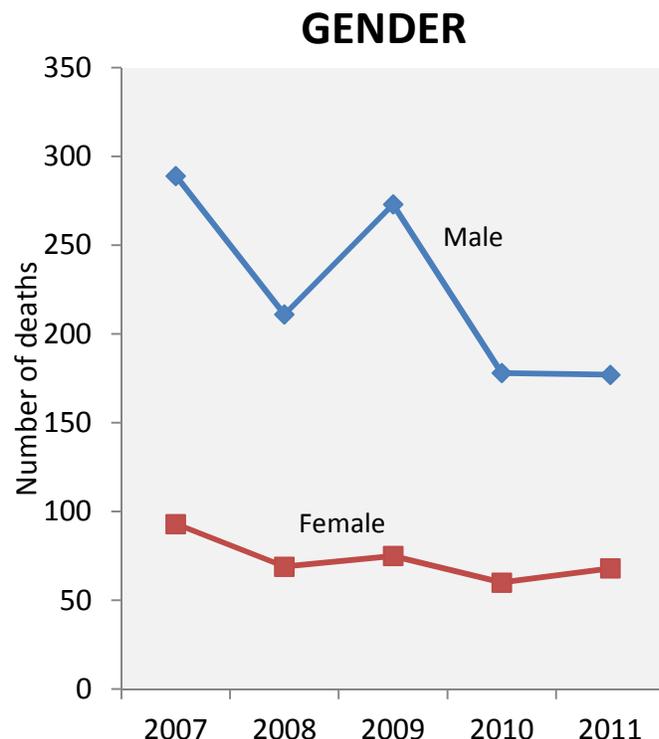
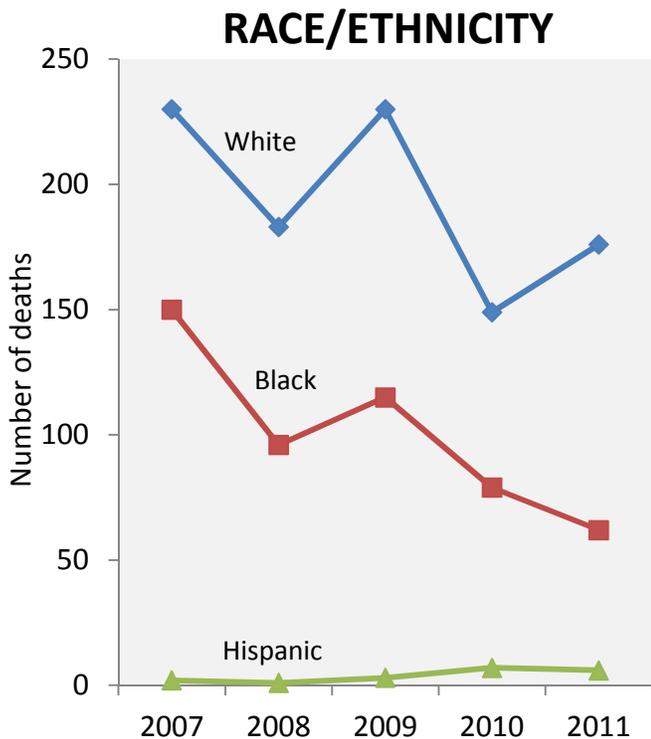
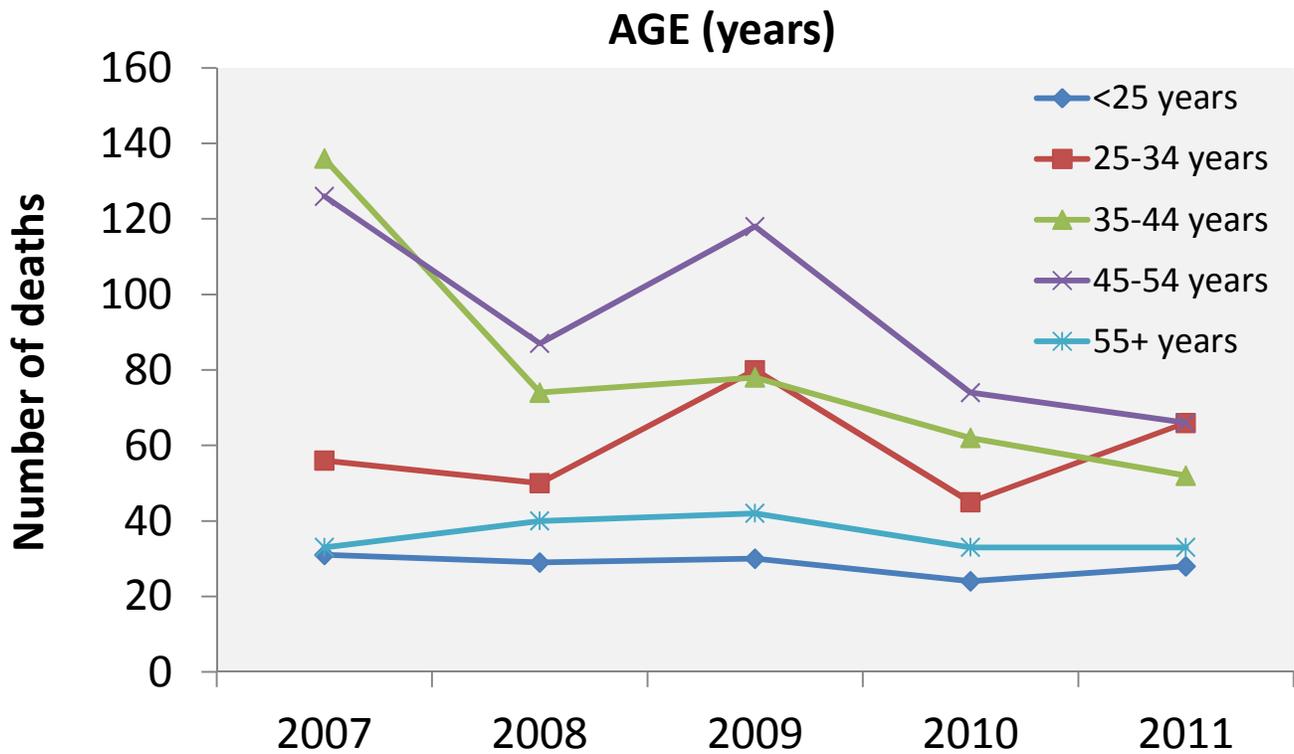
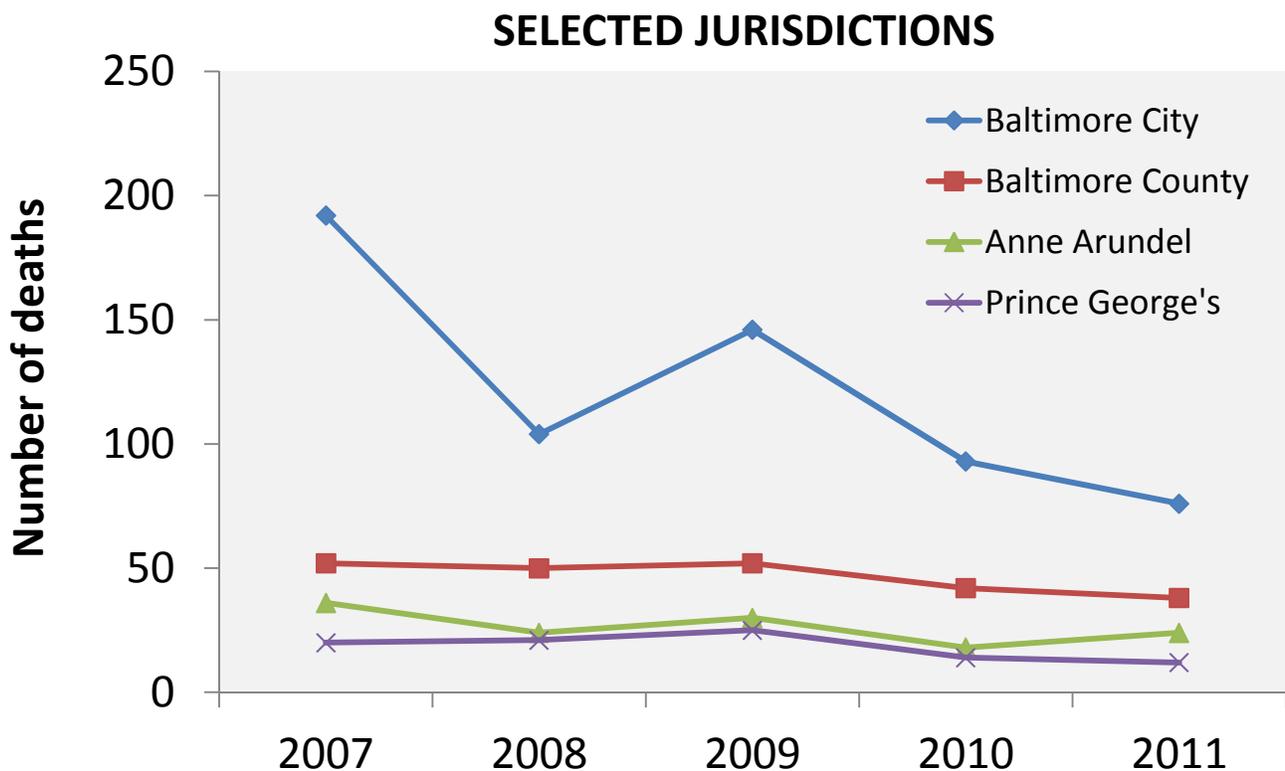
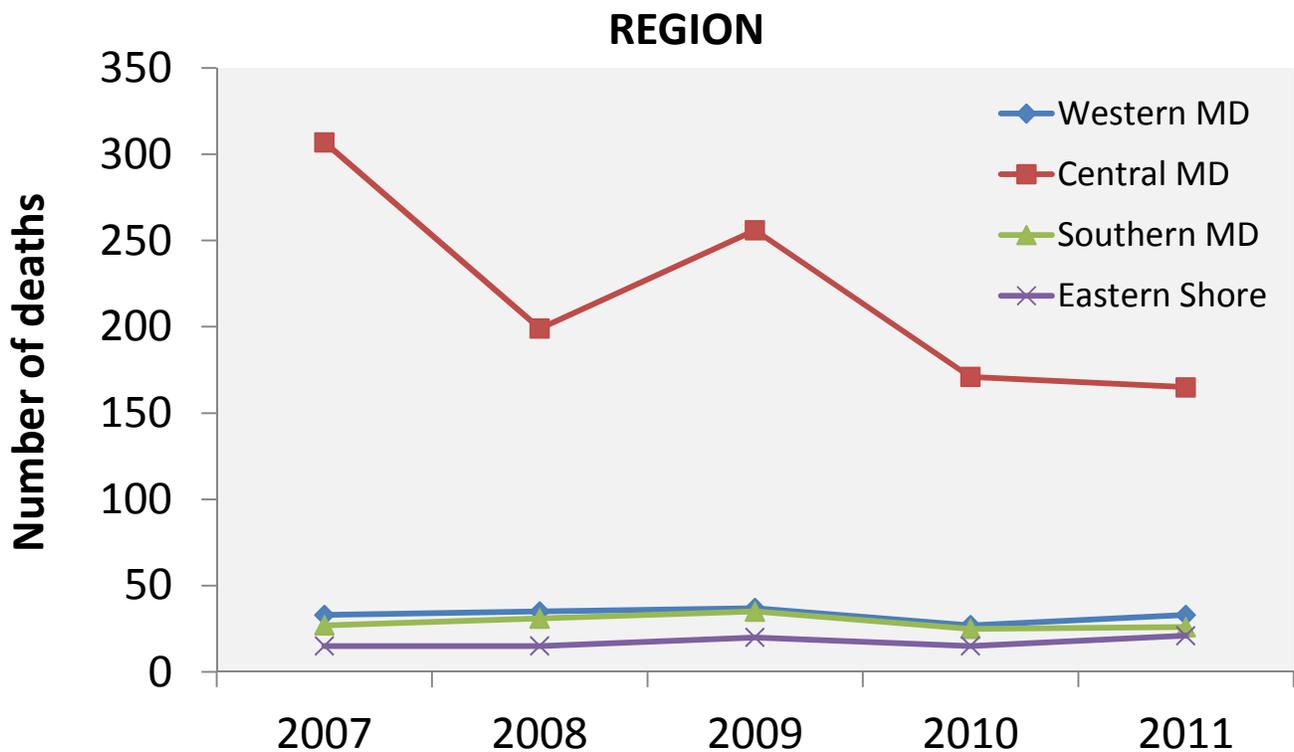


Figure 10. Number of Heroin-Related Deaths by Place of Occurrence, Maryland, 2007-2011.



PRESCRIPTION OPIOID- RELATED DEATHS

Figure 11. Number of Deaths Occurring in Maryland by Selected Prescription Opioids, 2007-2011.

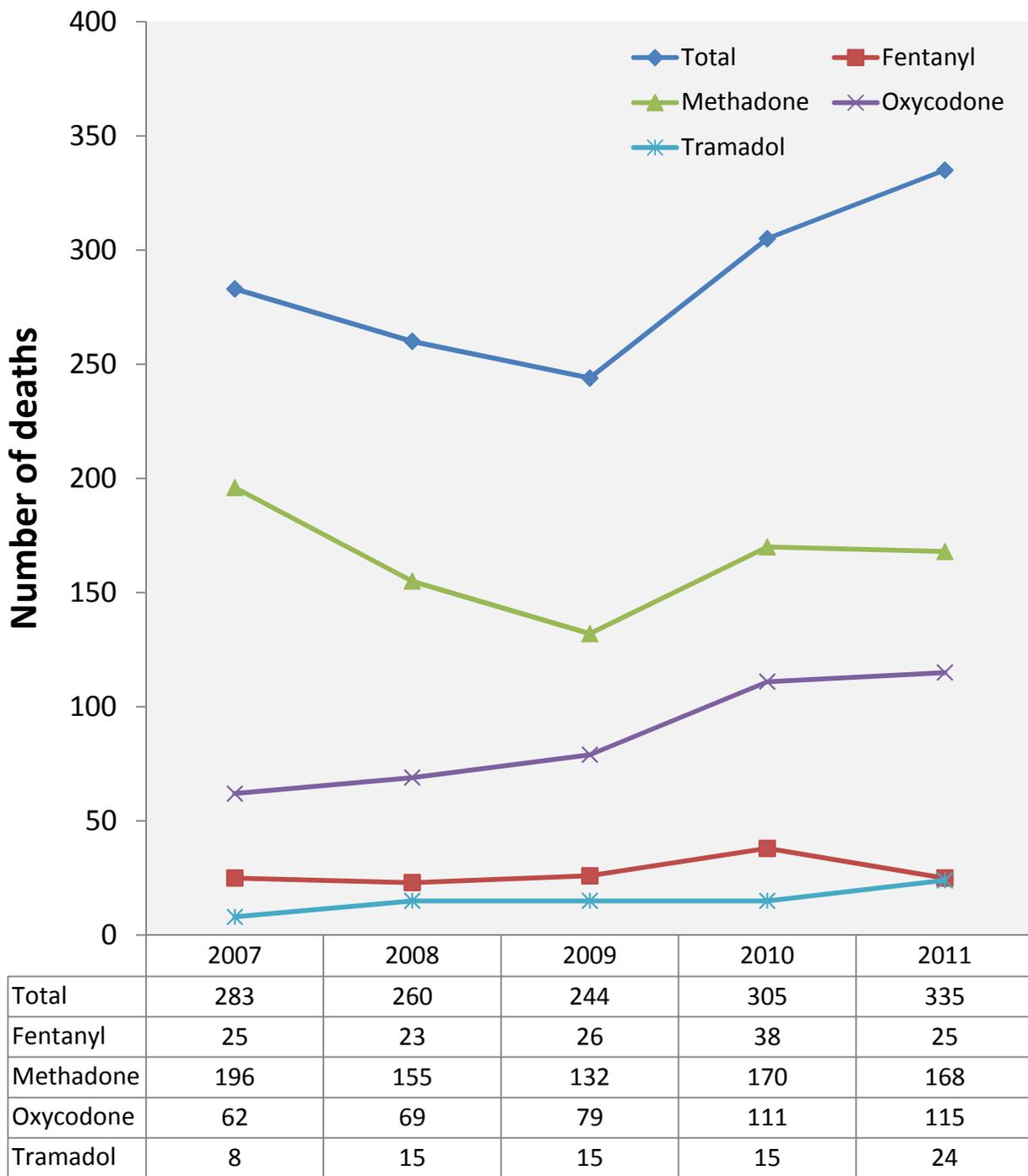


Figure 12. Number of Prescription Opioid-Related Deaths Occurring in Maryland, 2007-2011.

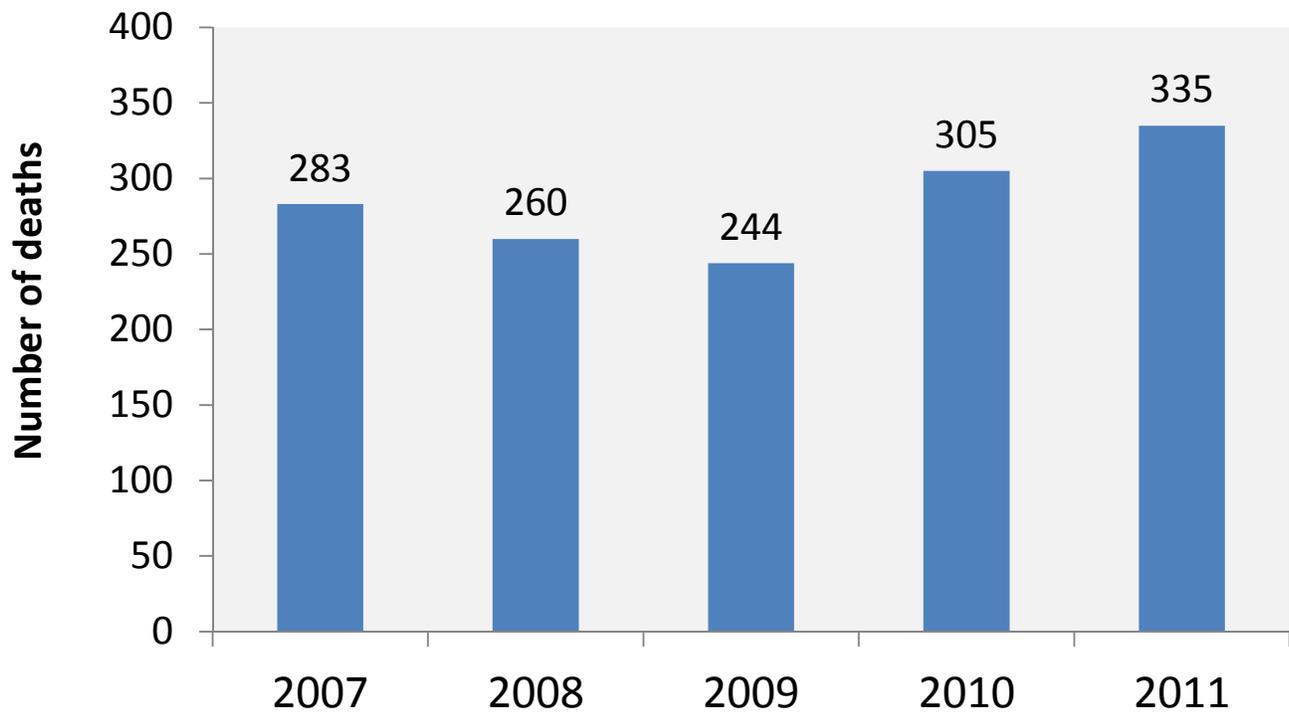


Figure 13. Number of Prescription Opioid-Related Deaths Occurring in Maryland by Age, Race/Ethnicity and Gender, 2007-2011.

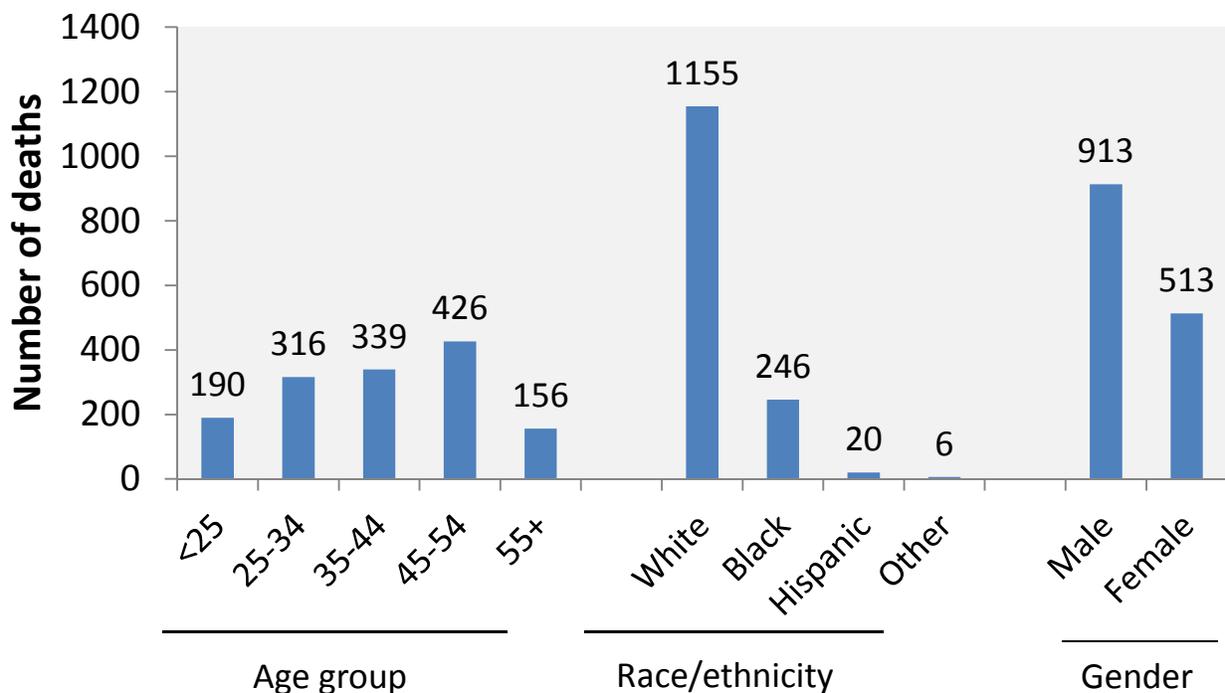


Figure 14. Number of Prescription Opioid-Related Deaths Occurring in Maryland by Age Group, Race/Ethnicity and Gender, 2007-2011.

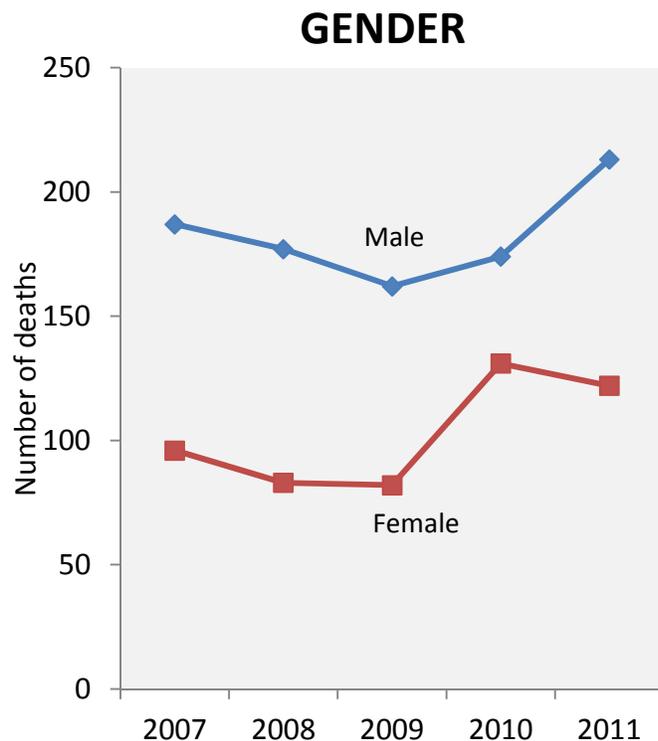
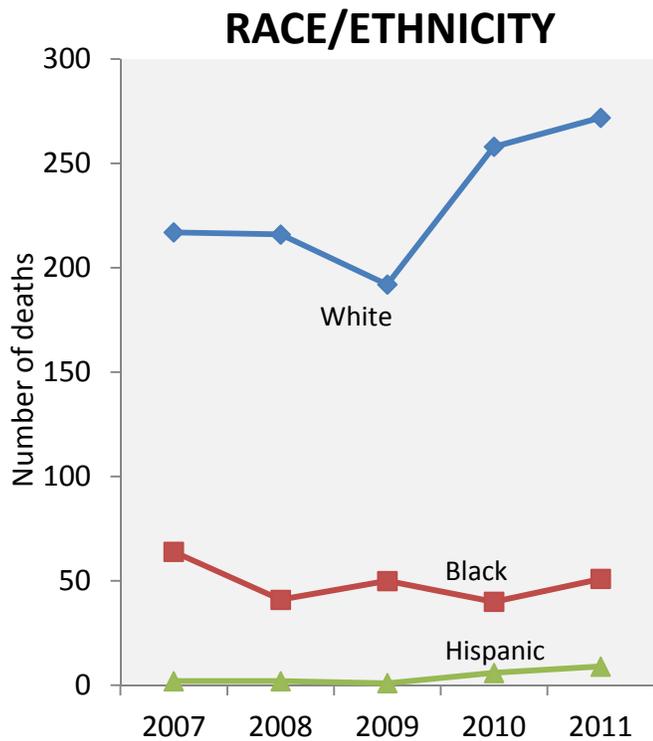
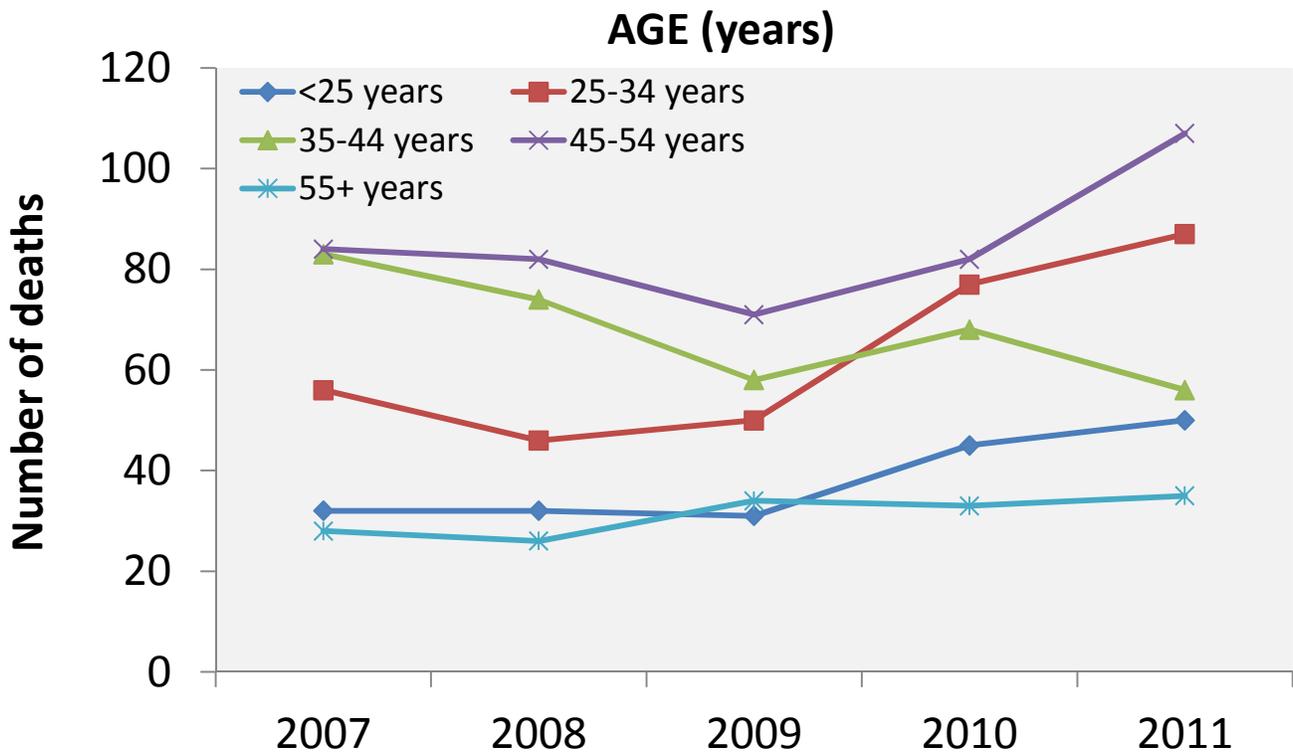
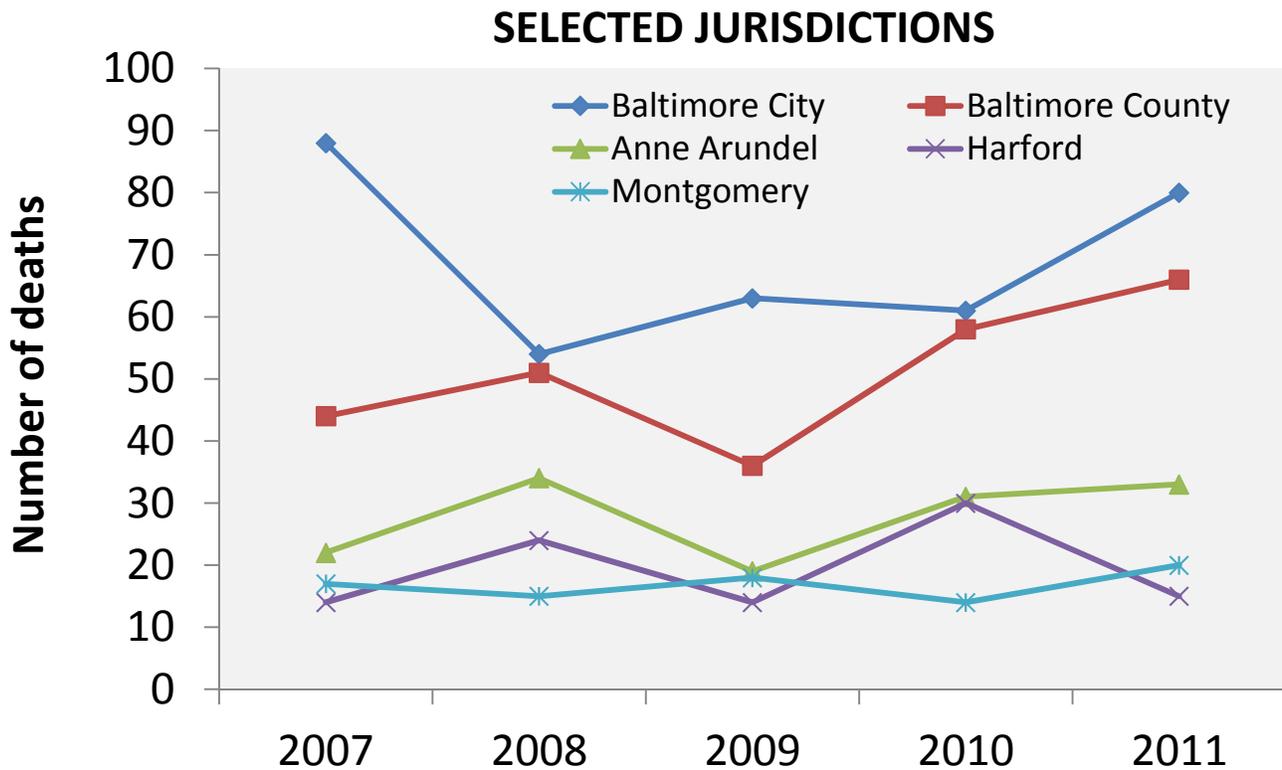
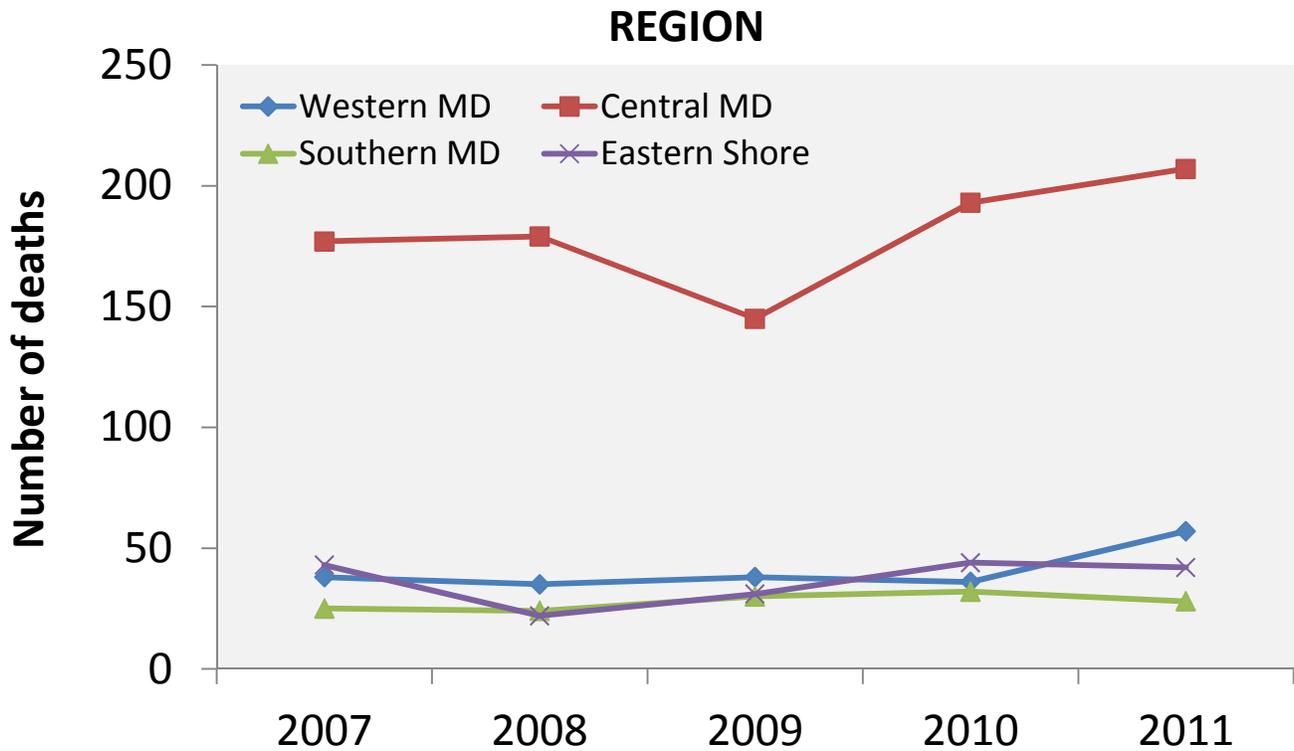


Figure 15. Number of Prescription Opioid-Related Deaths by Place of Occurrence, Maryland, 2007-2011.



OXYCODONE-RELATED DEATHS

Figure 16. Number of Oxycodone-Related Deaths Occurring in Maryland, 2007-2011.

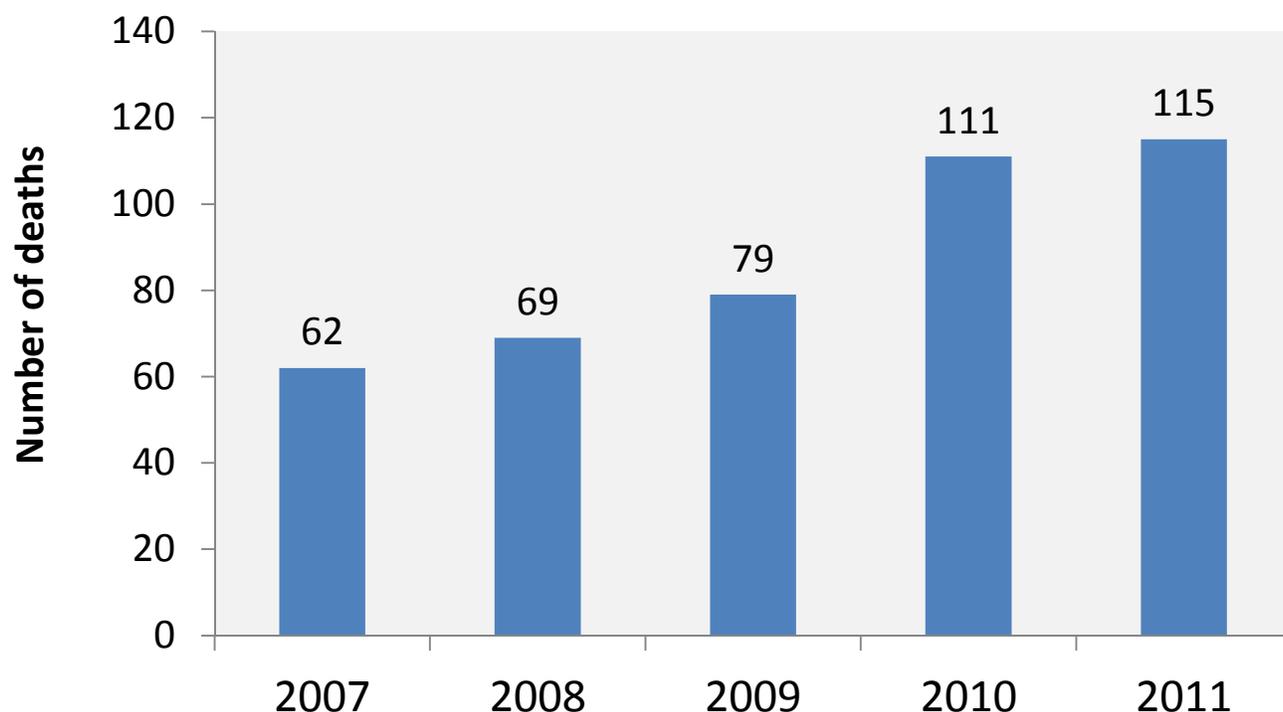


Figure 17. Number of Oxycodone-Related Deaths Occurring in Maryland by Age, Race/Ethnicity and Gender, 2007-2011.

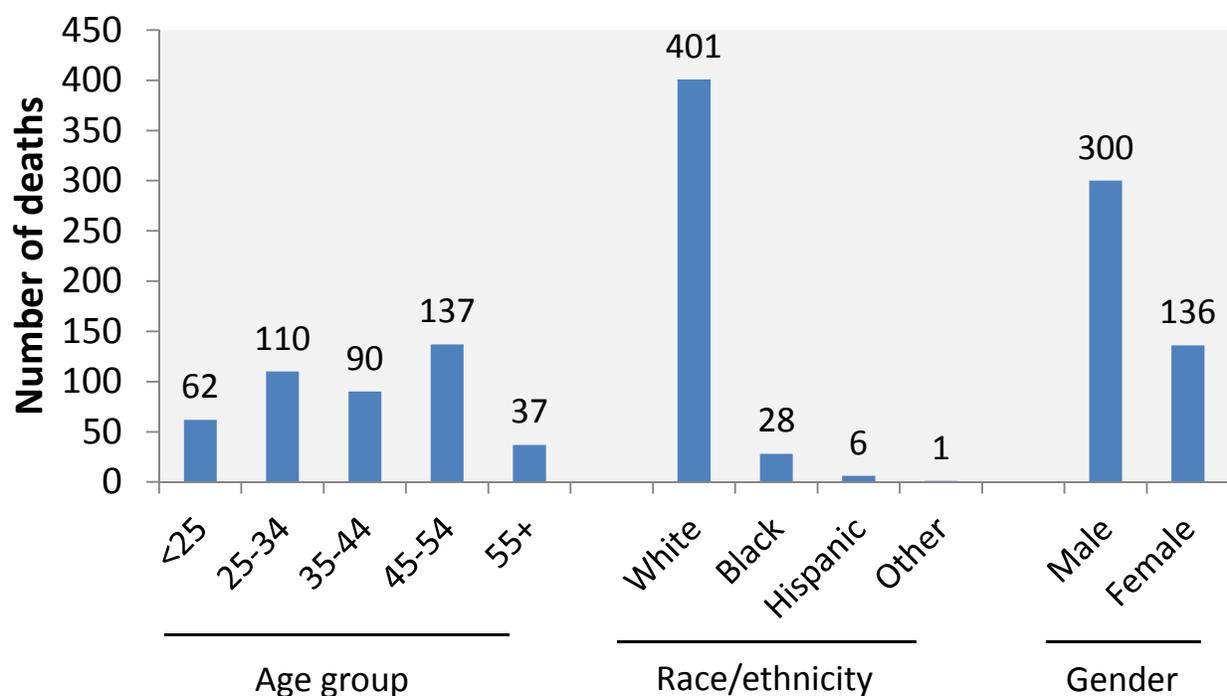


Figure 18. Number of Oxycodone-Related Deaths Occurring in Maryland by Age Group, Race/Ethnicity and Gender, 2007-2011.

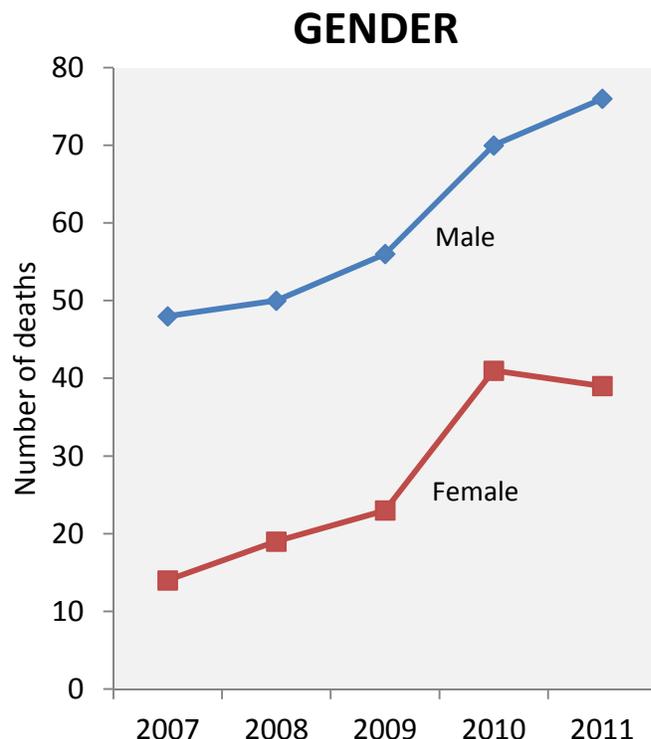
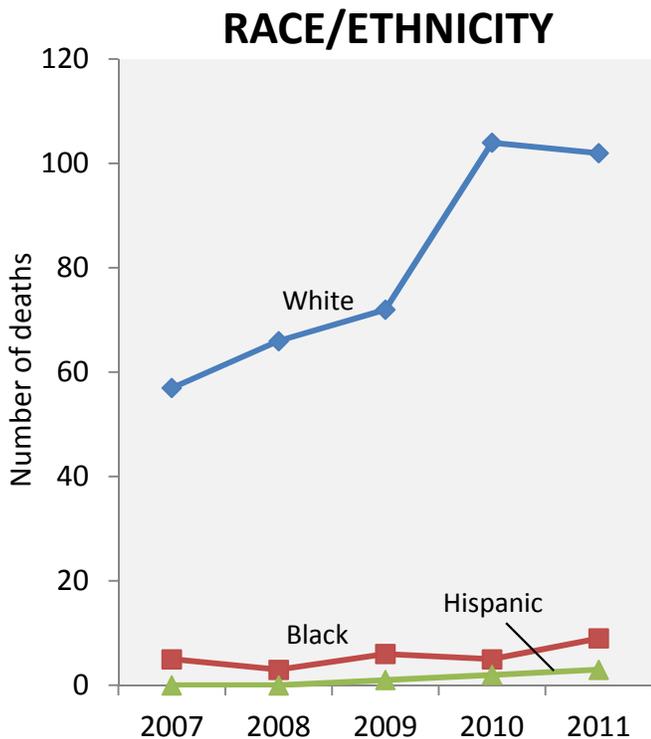
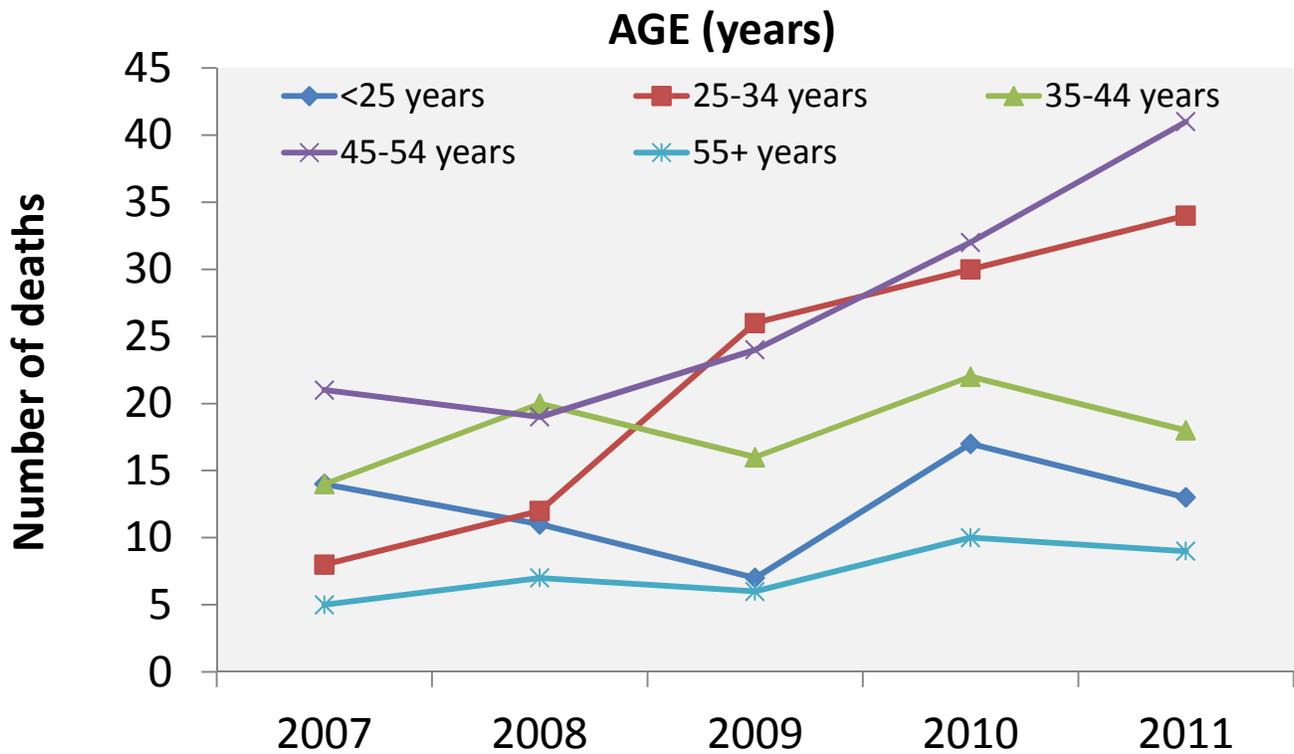
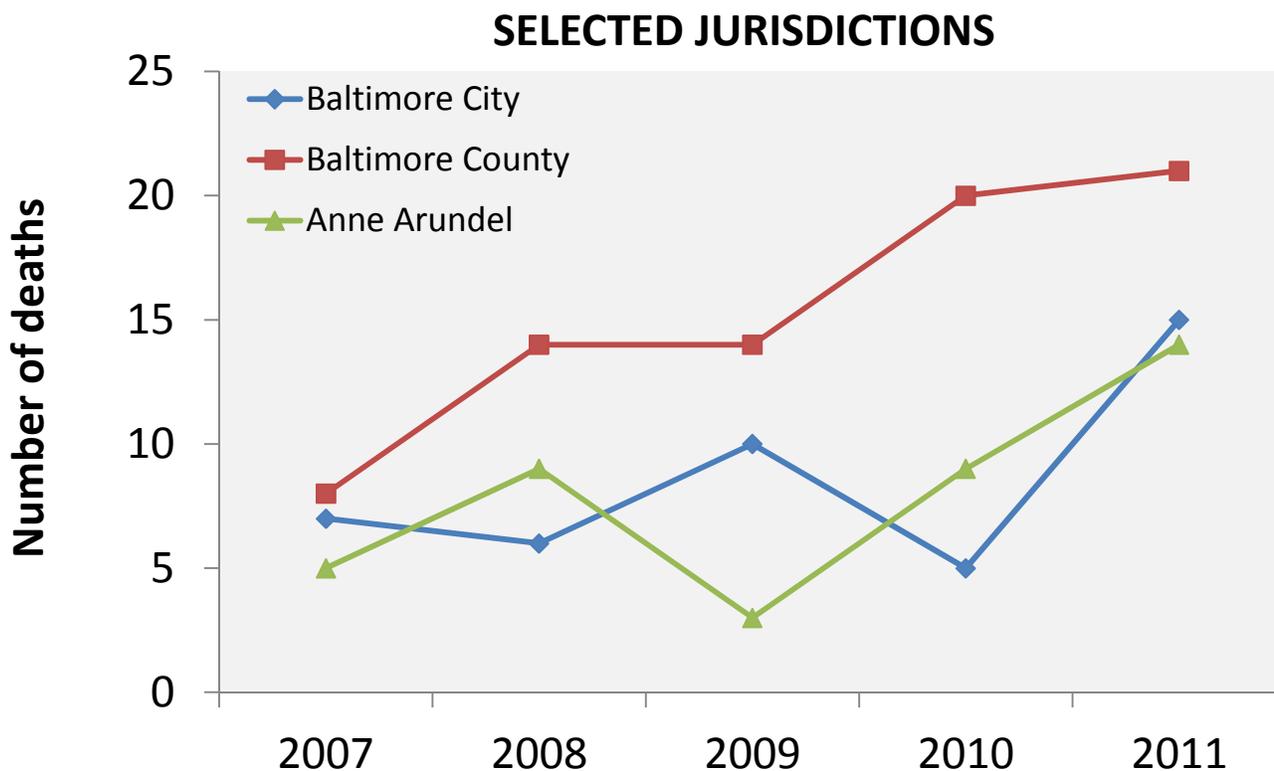
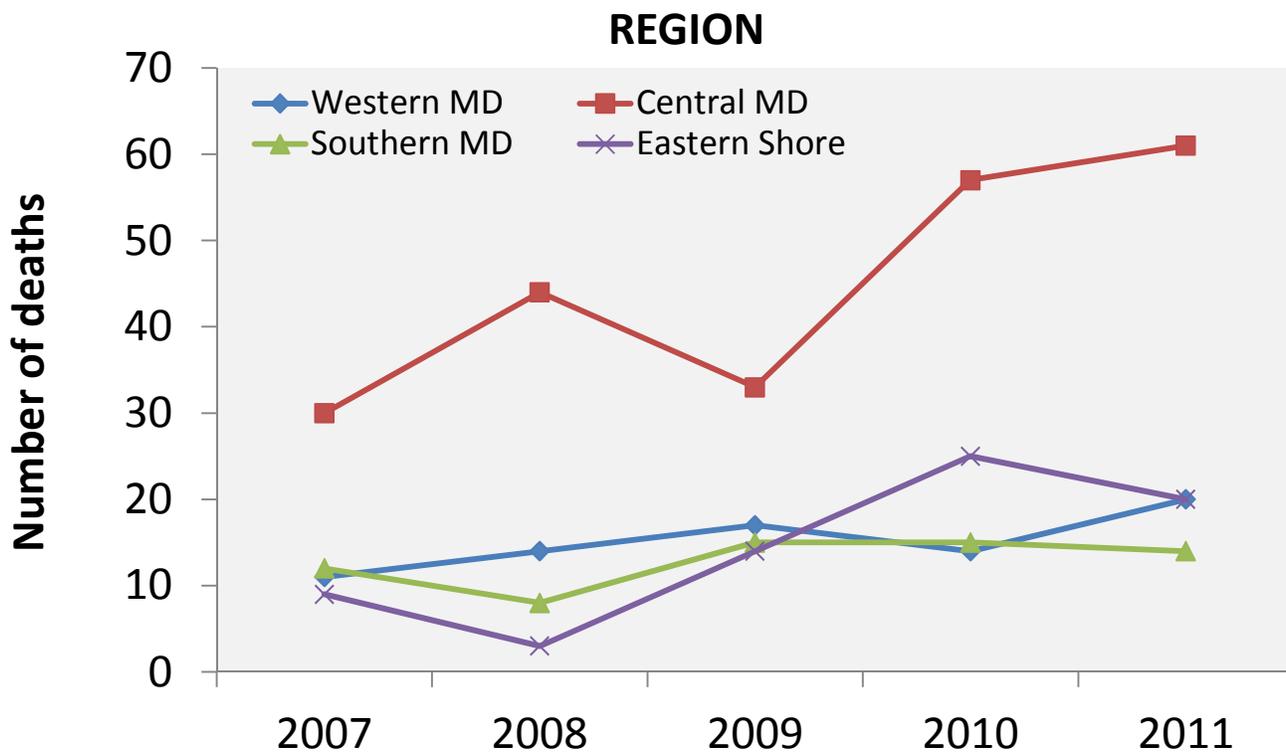


Figure 19. Number of Oxycodone-Related Deaths Occurring in Maryland by Place of Occurrence, 2007-2011.



METHADONE-RELATED DEATHS

Figure 20. Number of Methadone-Related Deaths Occurring in Maryland, 2007-2011.

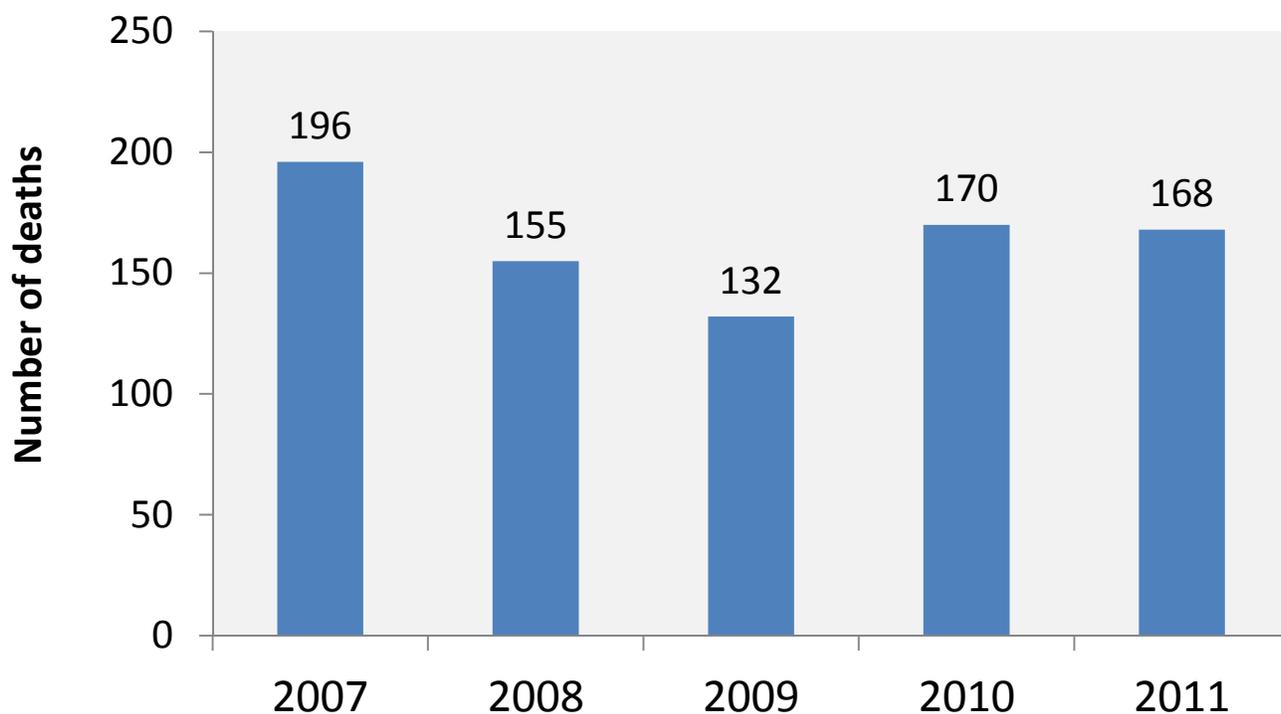


Figure 21. Number of Methadone-Related Deaths Occurring in Maryland by Age, Race/Ethnicity and Gender, 2007-2011.

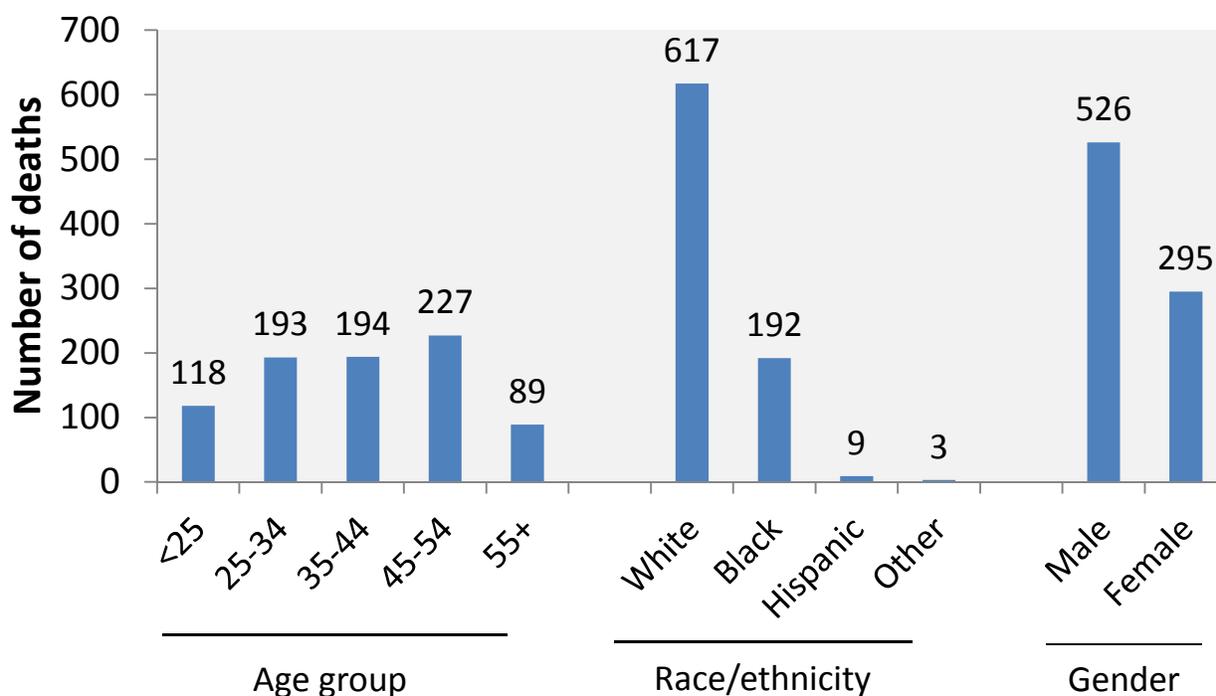


Figure 22. Number of Methadone-Related Deaths Occurring in Maryland by Age Group, Race/Ethnicity and Gender, 2007-2011.

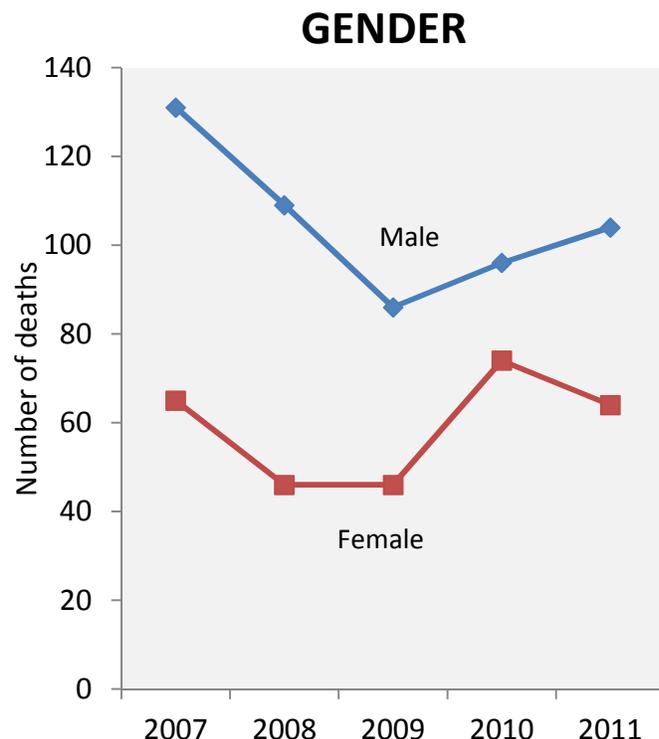
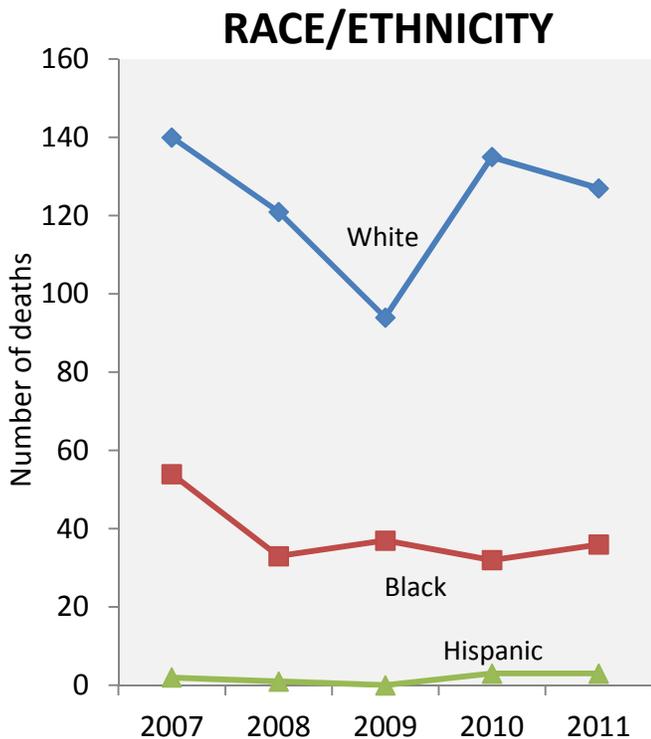
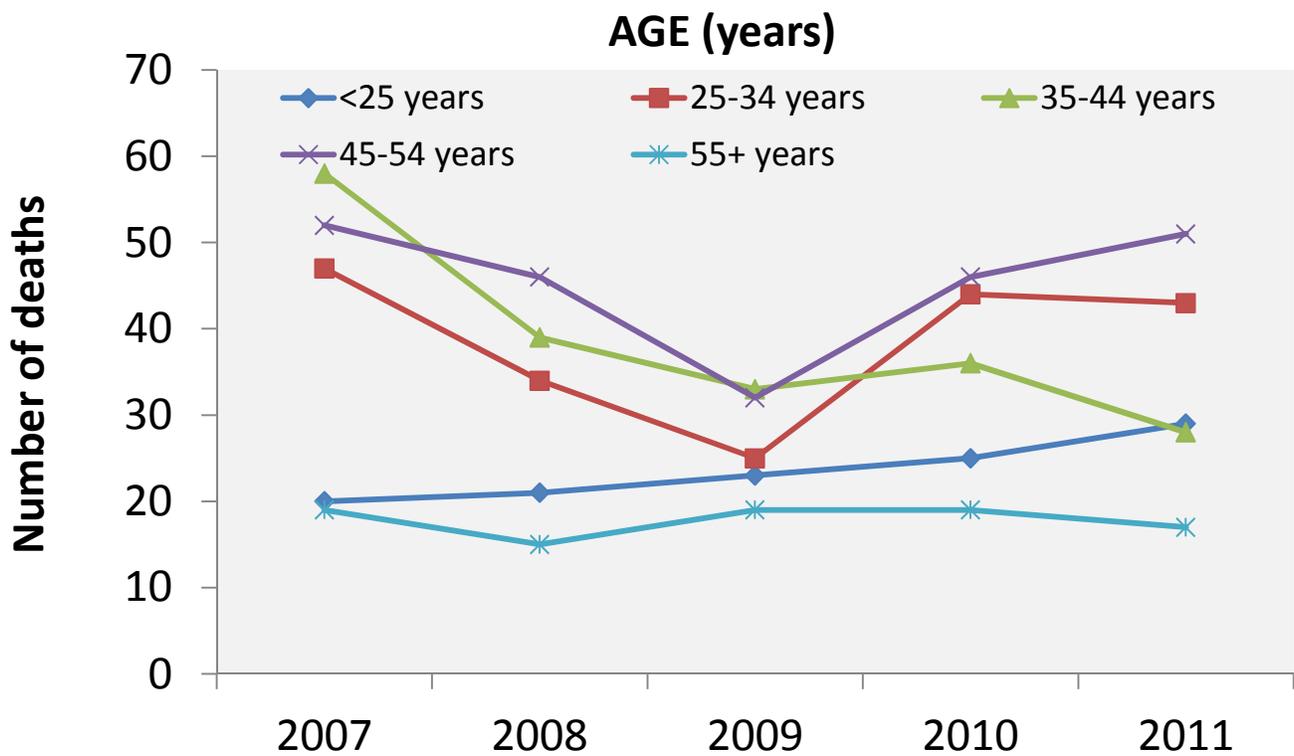
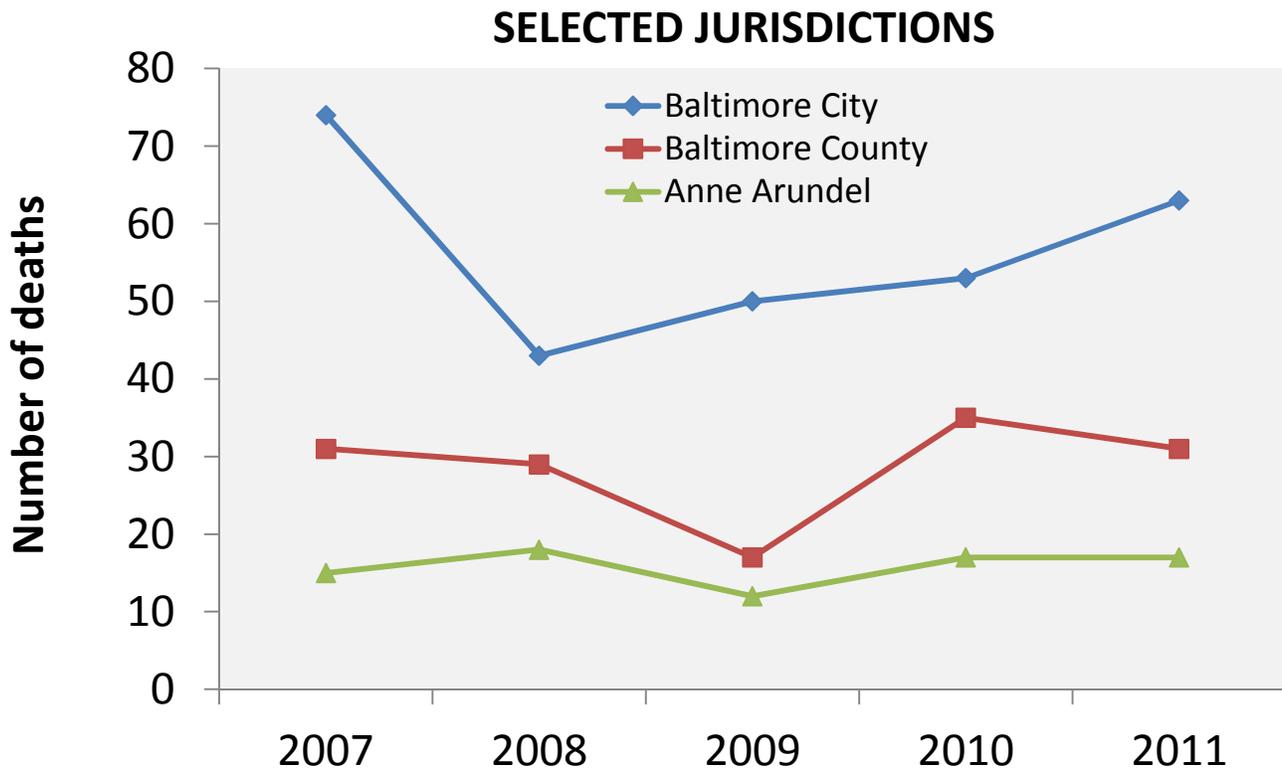
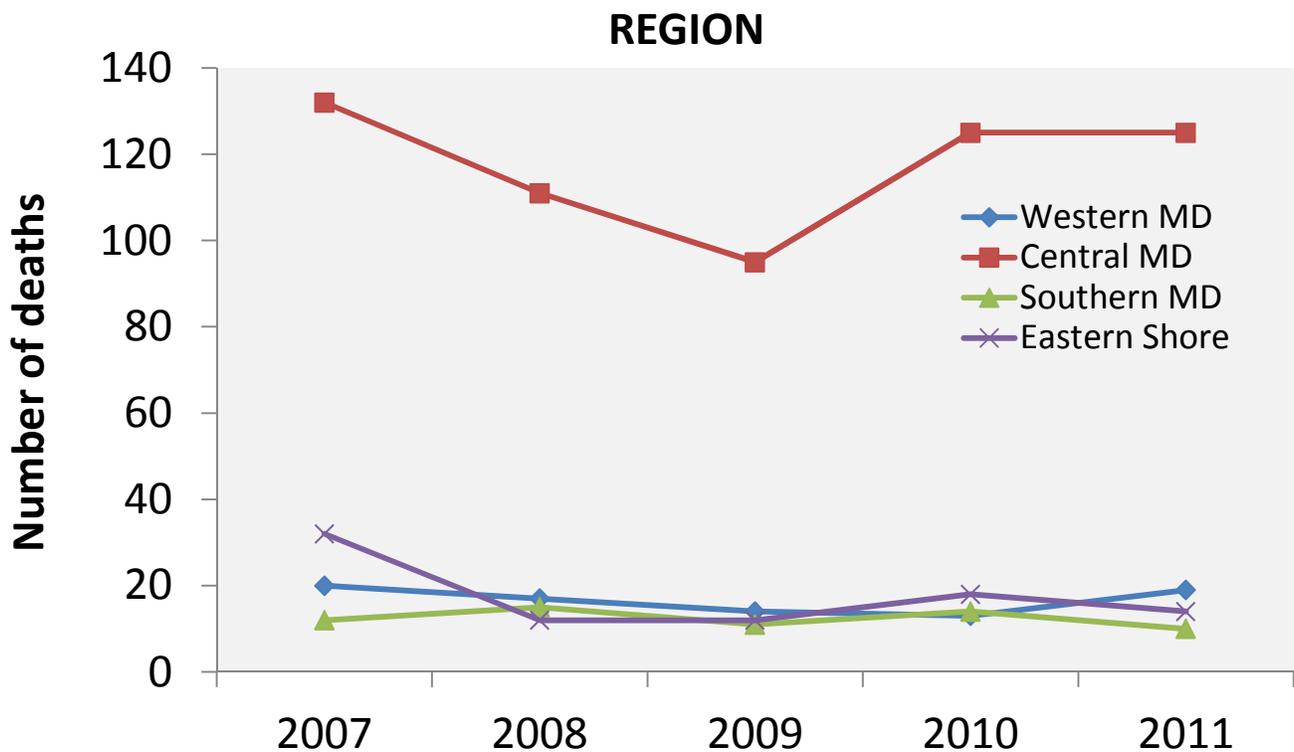


Figure 23. Number of Methadone-Related Deaths Occurring in Maryland by Place of Occurrence, 2007-2011.



FENTANYL-RELATED DEATHS

Figure 24. Number of Fentanyl-Related Deaths Occurring in Maryland, 2007-2011.

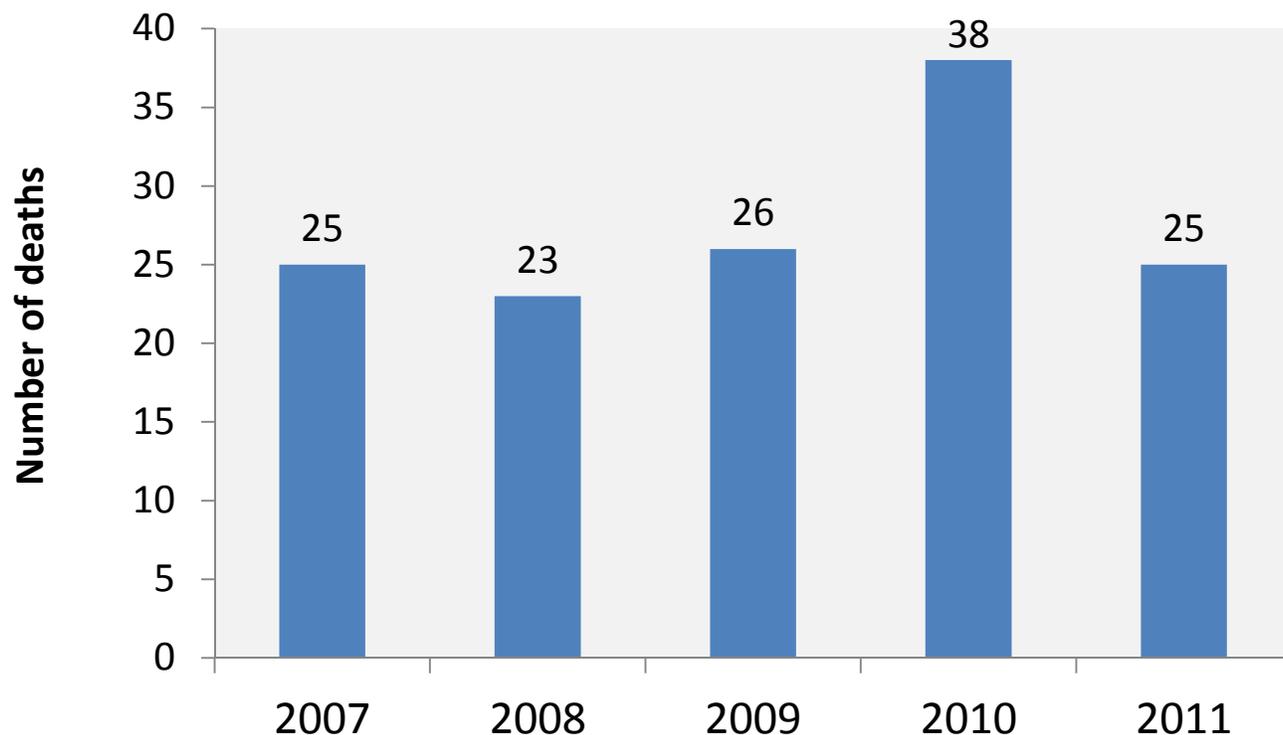


Figure 25. Number of Fentanyl-Related Deaths Occurring in Maryland by Age, Race/Ethnicity and Gender, 2007-2011.

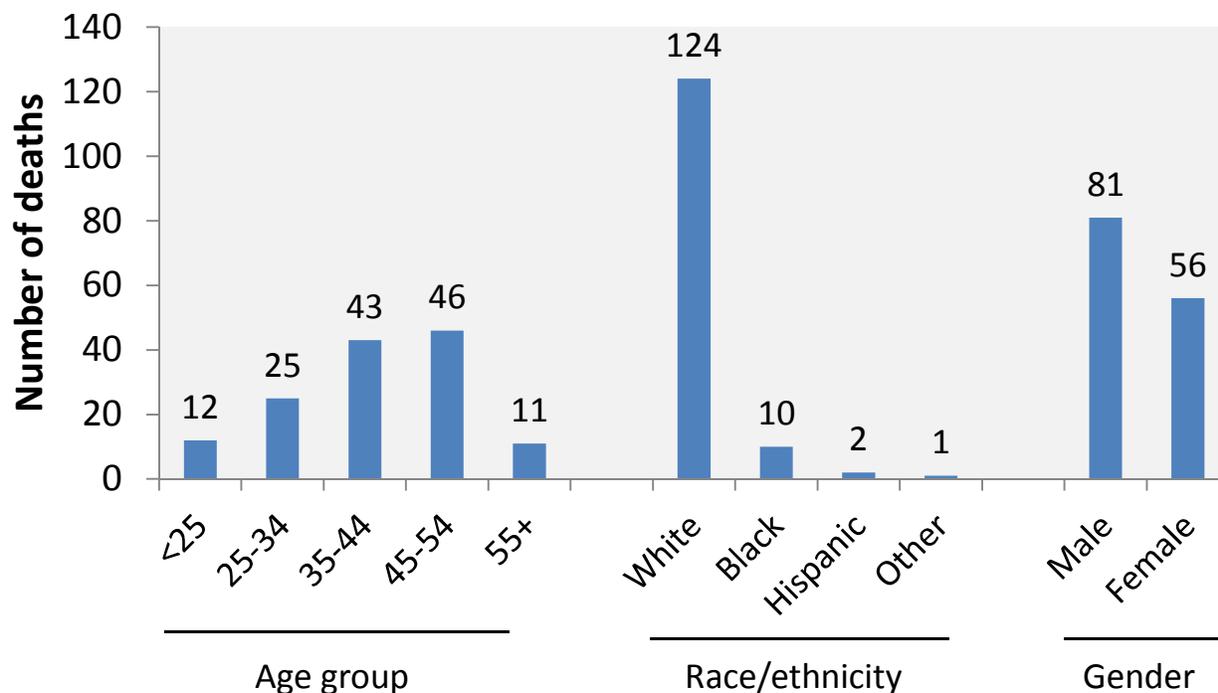


Figure 26. Number of Fentanyl-Related Deaths Occurring in Maryland by Age Group, Race/Ethnicity and Gender, 2007-2011.

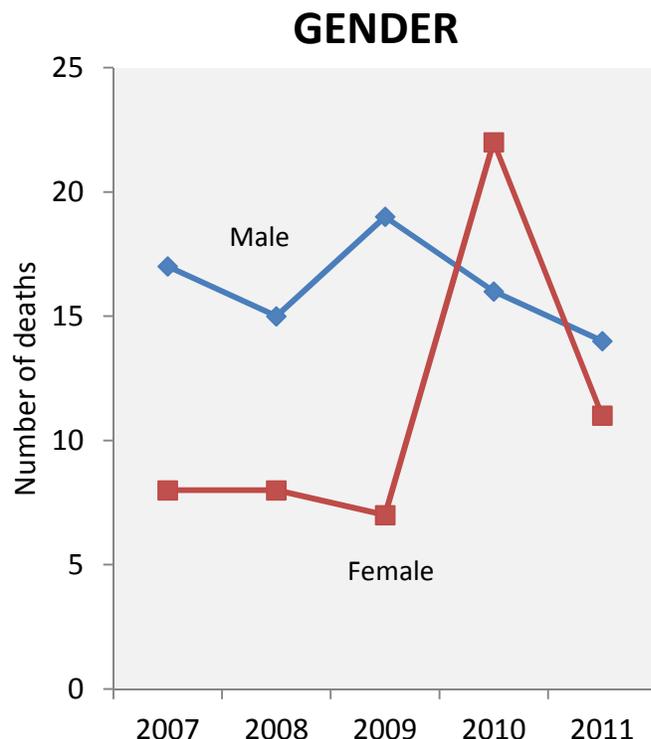
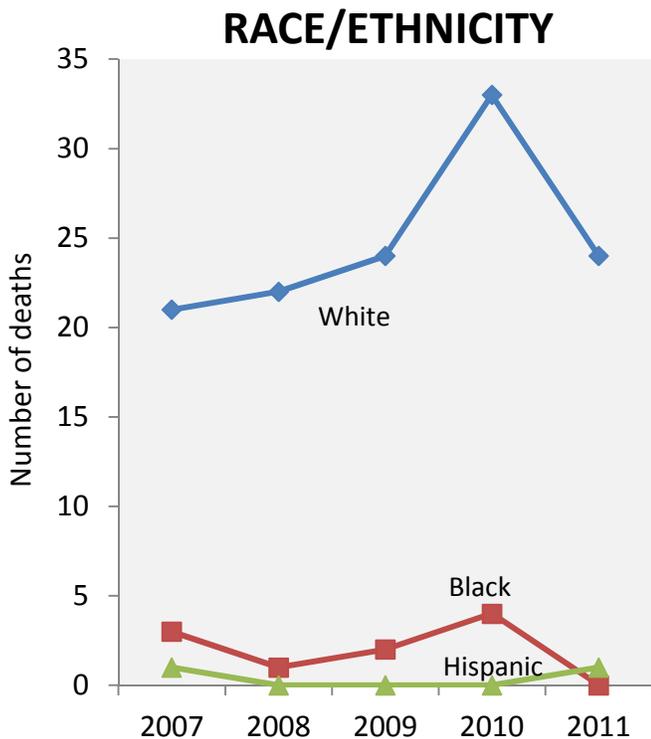
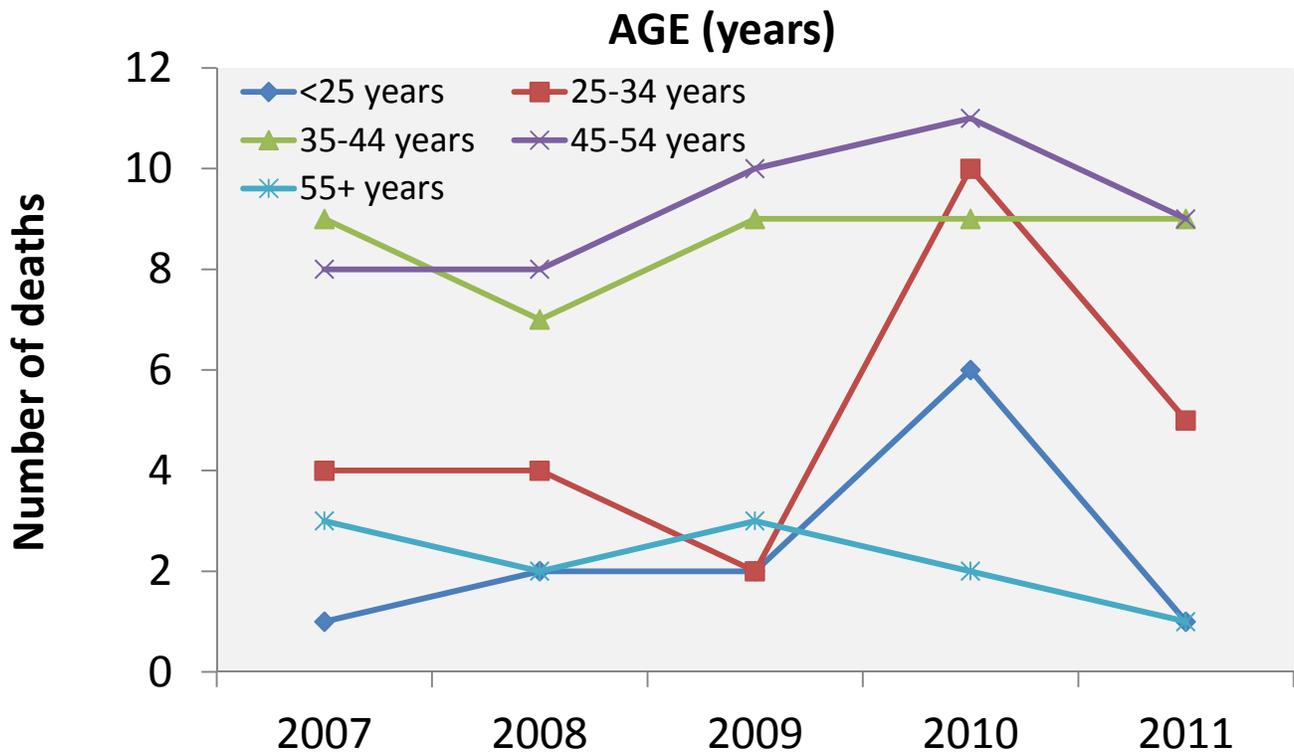
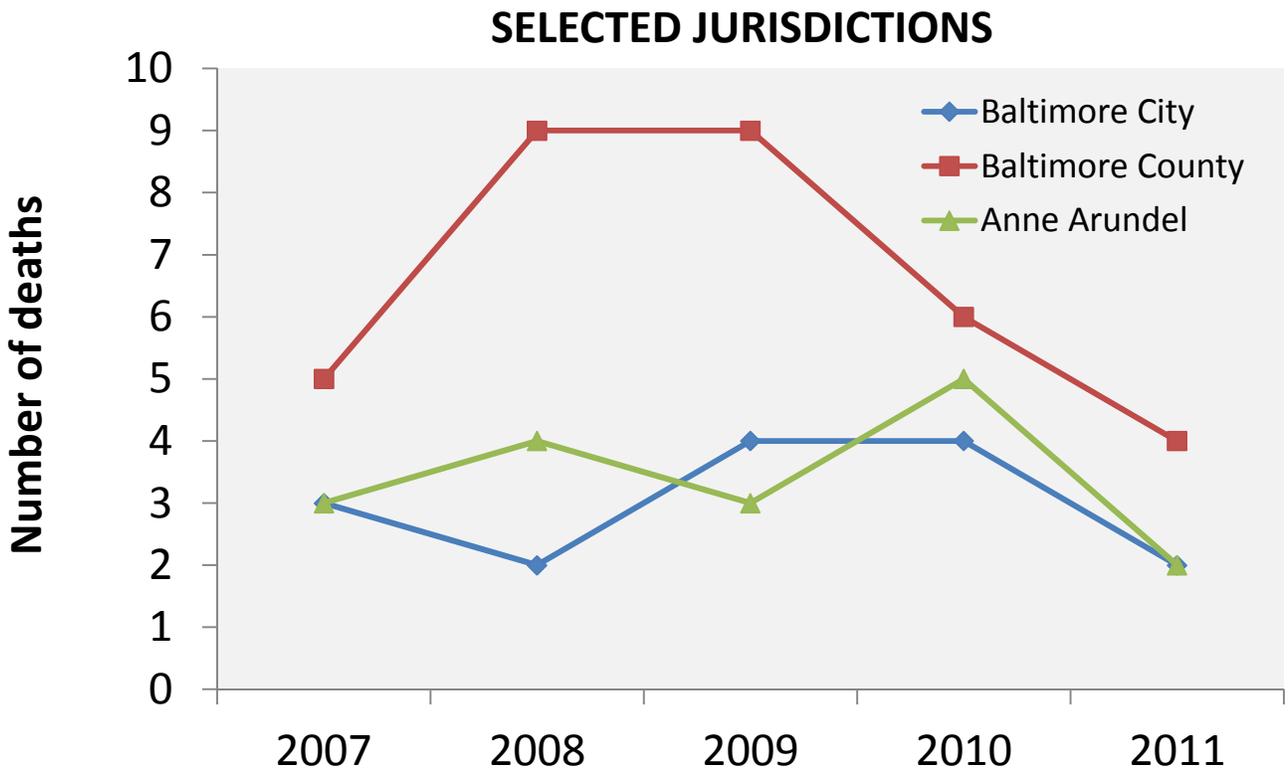
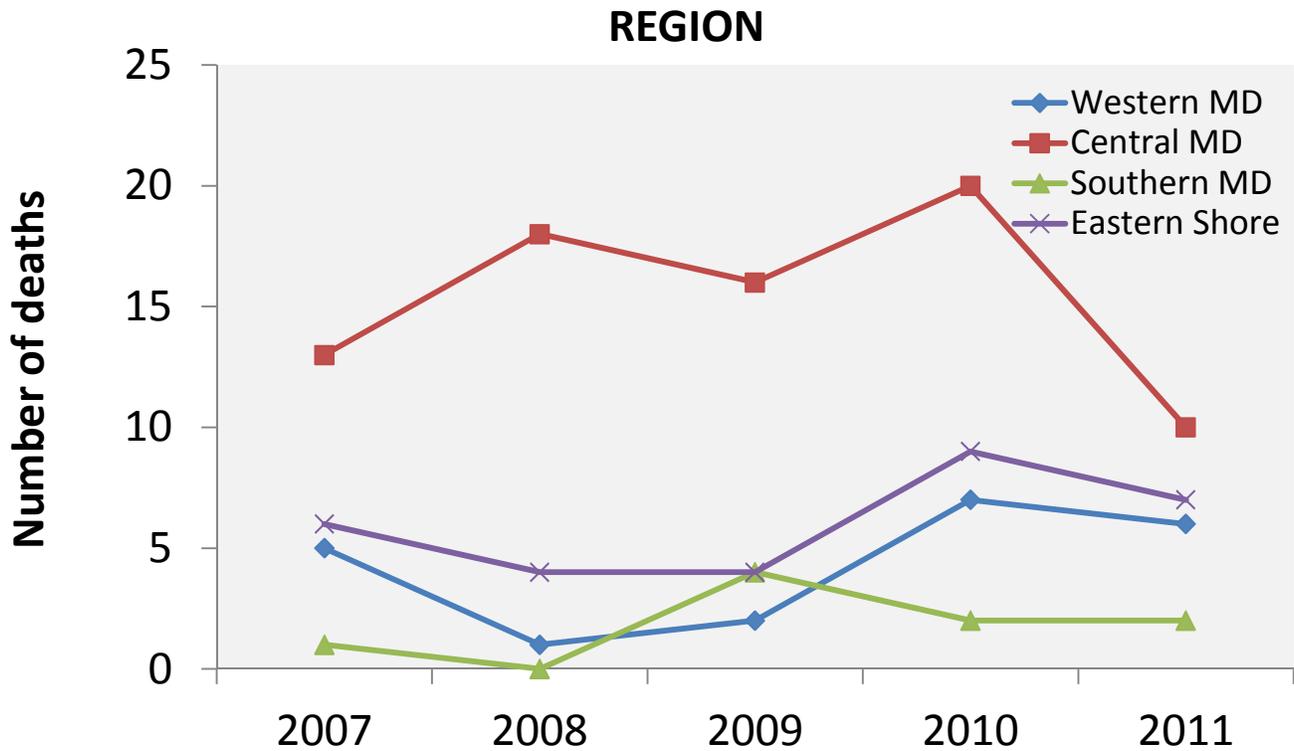


Figure 27. Number of Fentanyl-Related Deaths by Place of Occurrence, Maryland, 2007-2011.



TRAMADOL-RELATED DEATHS

Figure 28. Number of Tramadol-Related Deaths Occurring in Maryland, 2007-2011.

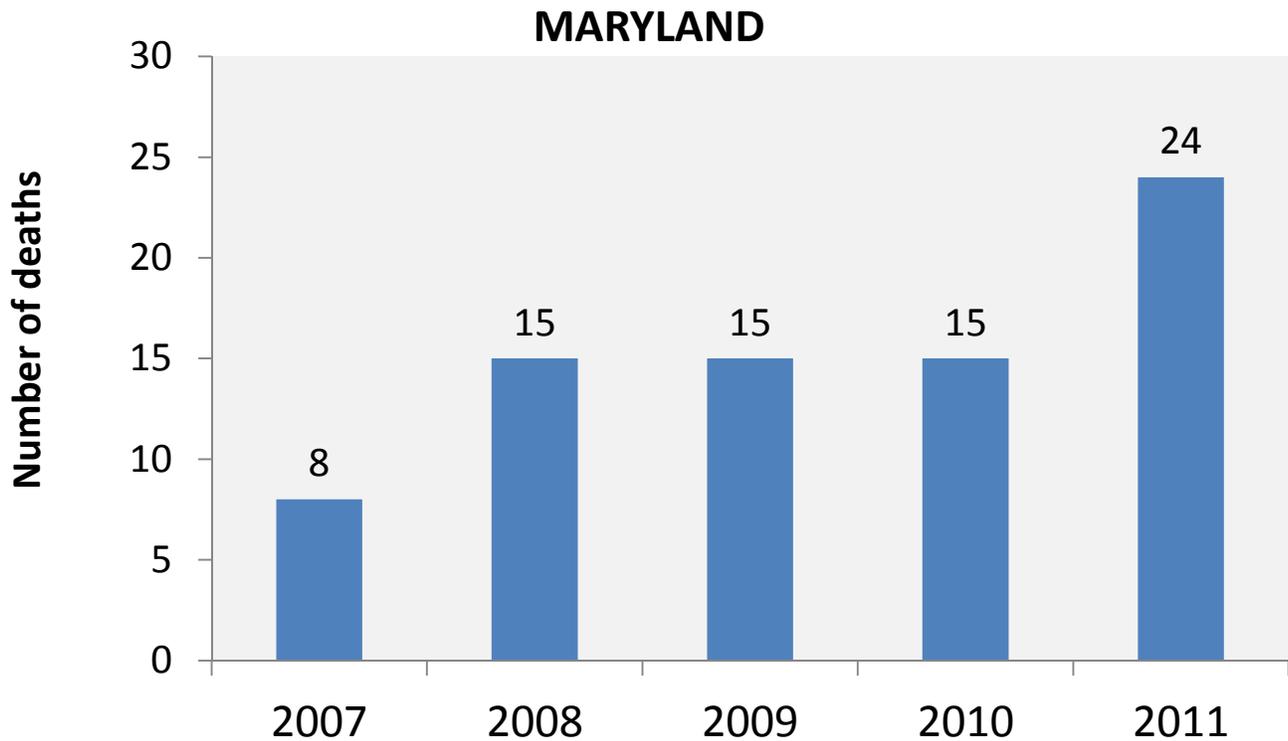


Figure 29. Number of Tramadol-Related Deaths Occurring in Maryland by Age, Race/Ethnicity and Gender, 2007-2011.

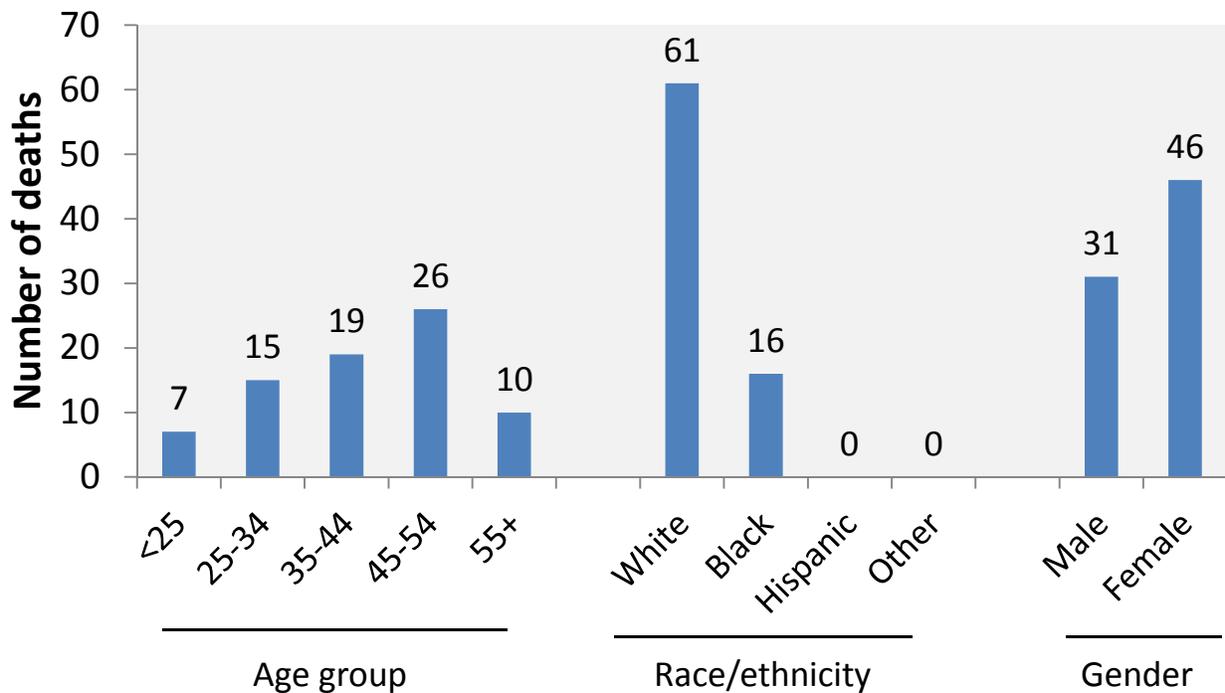


Figure 30. Number of Tramadol-Related Deaths Occurring in Maryland by Age Group, Race/Ethnicity and Gender, 2007-2011.

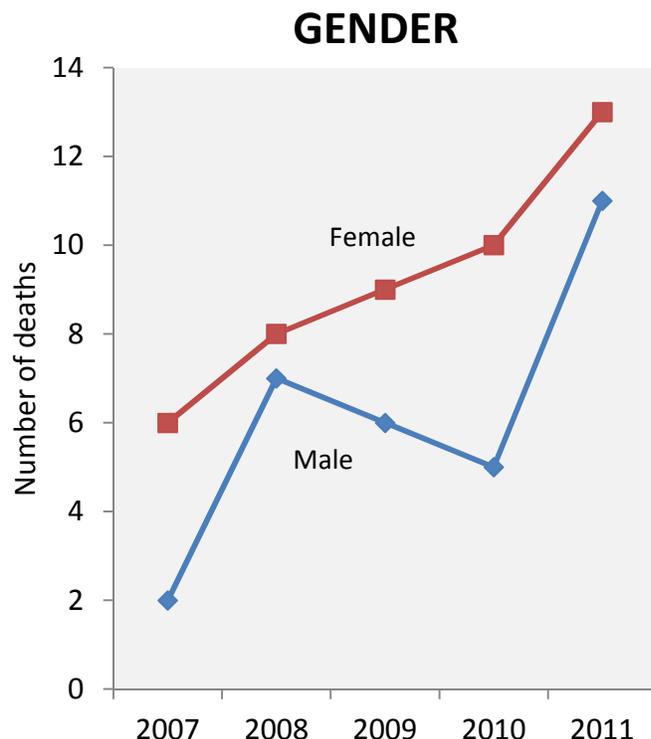
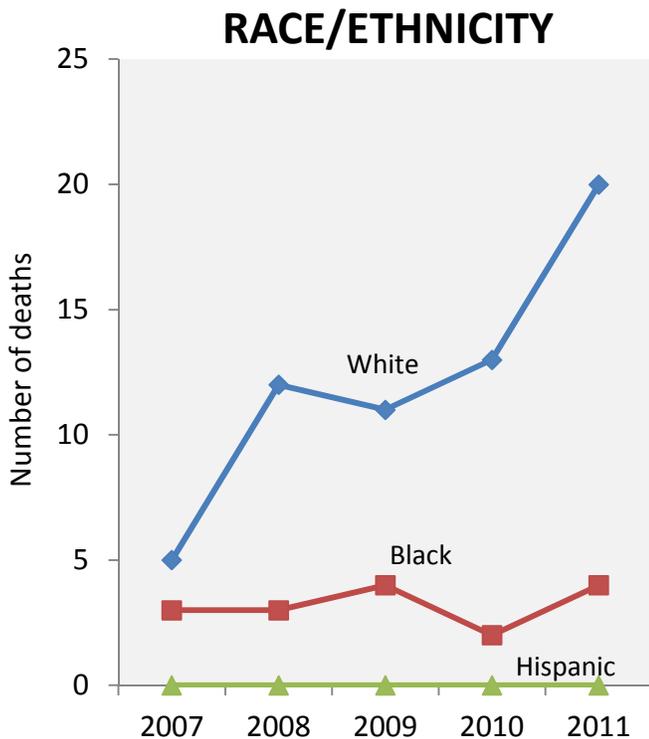
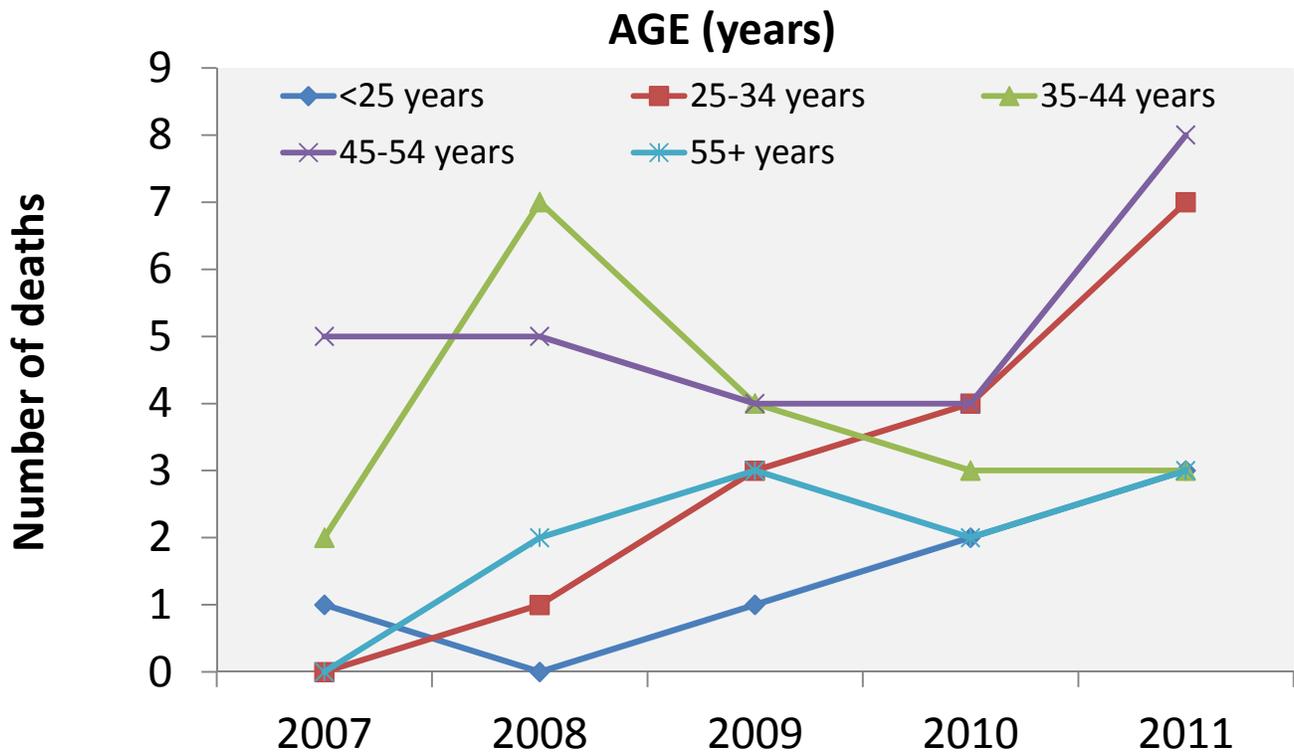
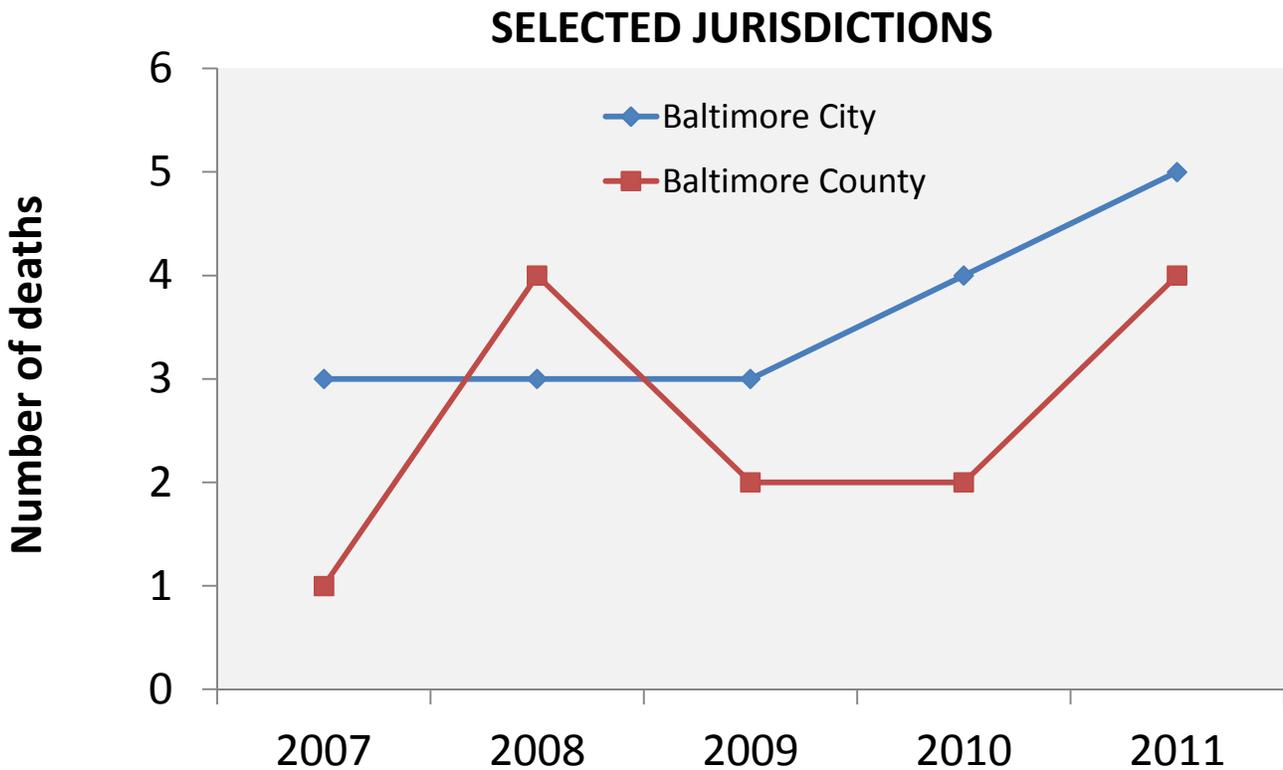
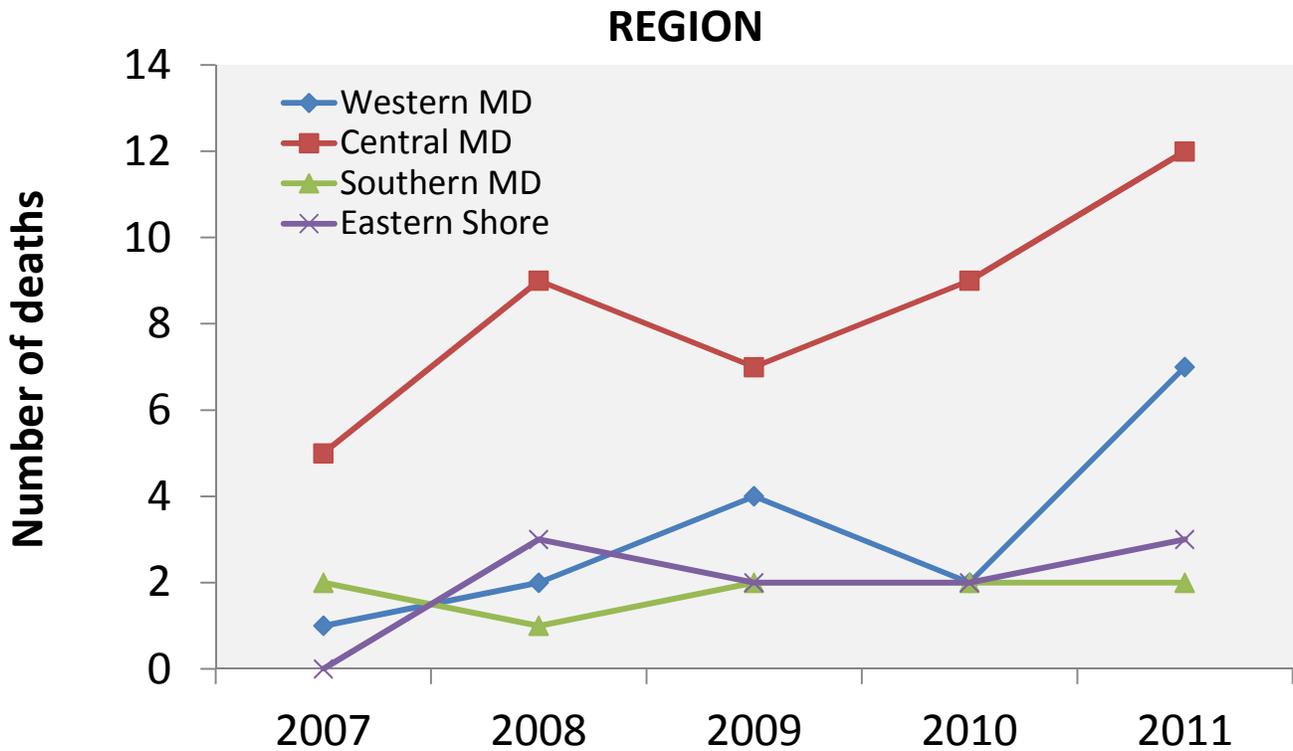


Figure 31. Number of Tramadol-Related Deaths by Place of Occurrence, Maryland, 2007-2011.



ALCOHOL-RELATED DEATHS

Figure 32. Number of Alcohol-Related Deaths Occurring in Maryland, 2007-2011.

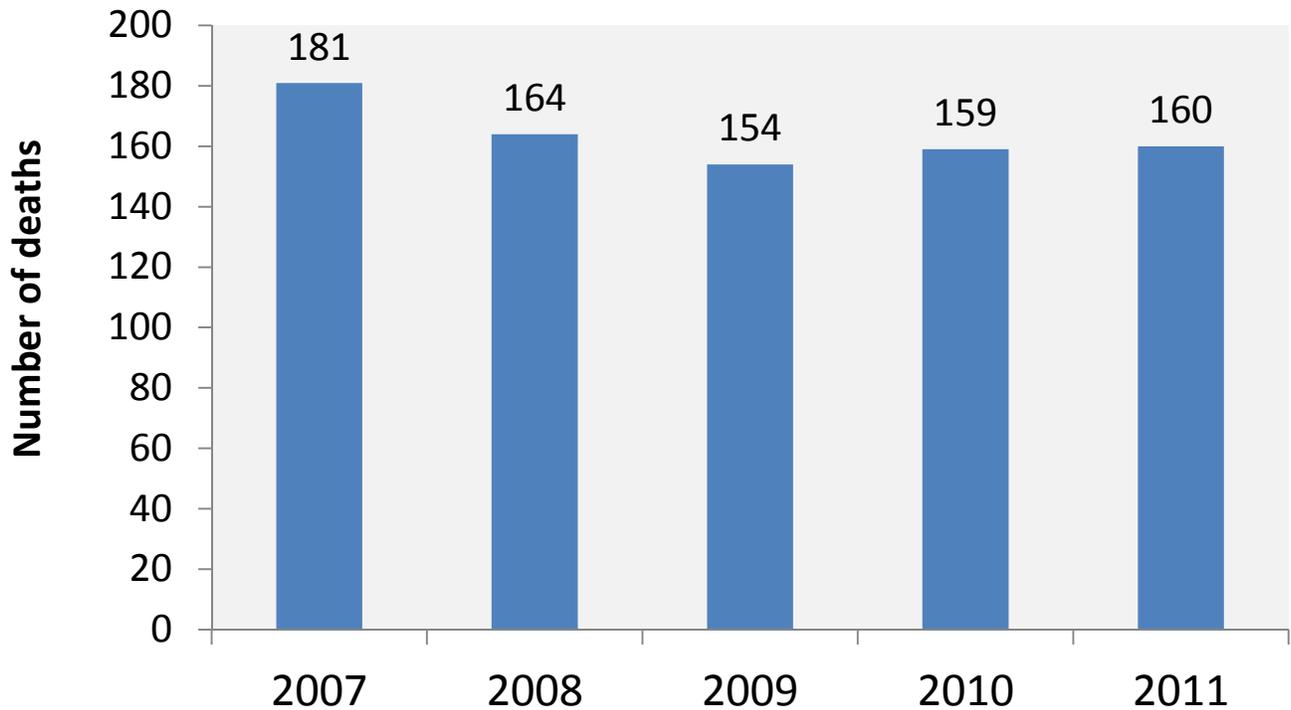


Figure 33. Number of Alcohol-Related Deaths Occurring in Maryland by Age, Race/Ethnicity and Gender, 2007-2011.

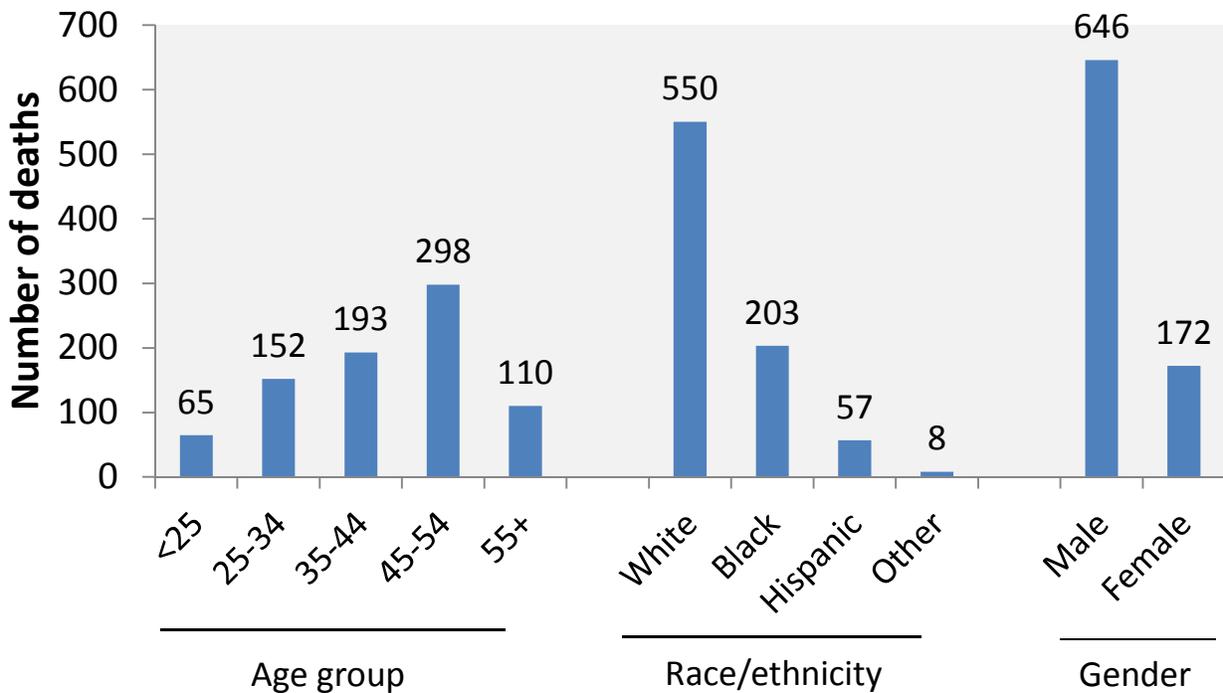


Figure 34. Number of Alcohol-Related Deaths Occurring in Maryland by Age Group, Race/Ethnicity and Gender, 2007-2011.

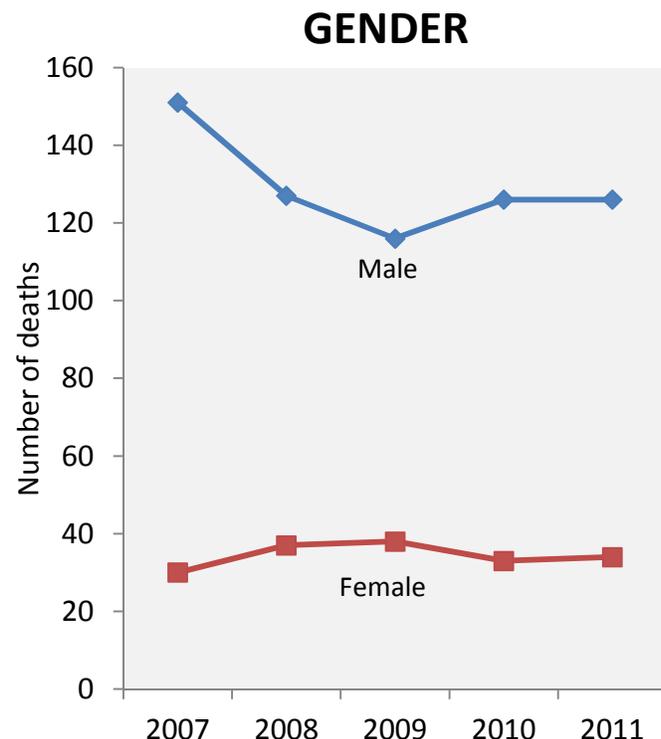
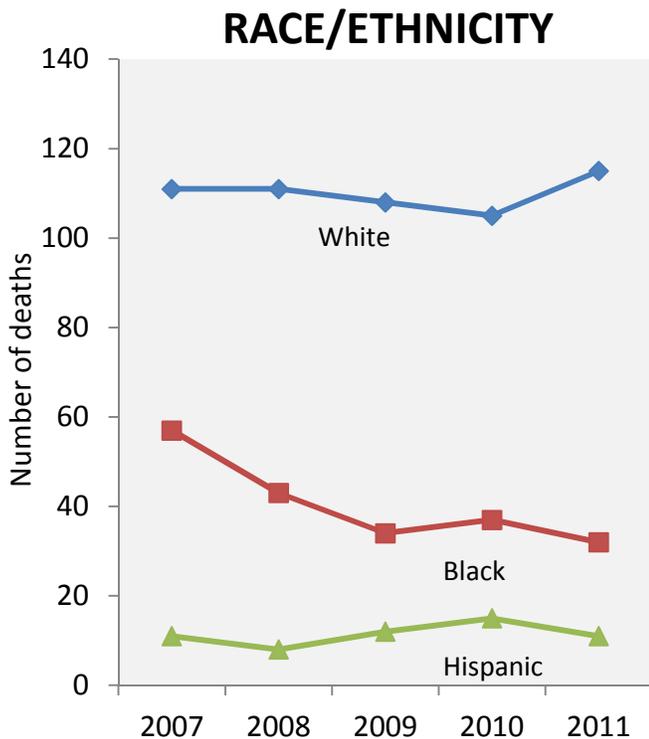
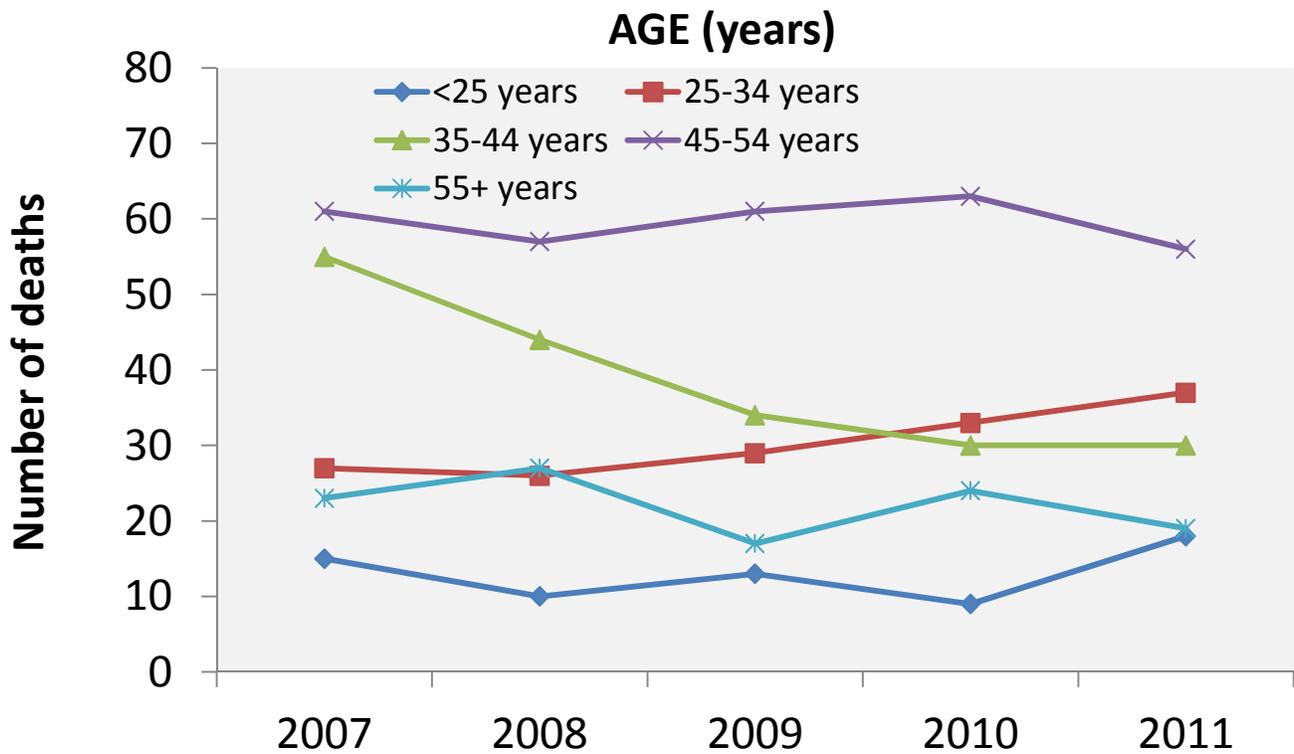
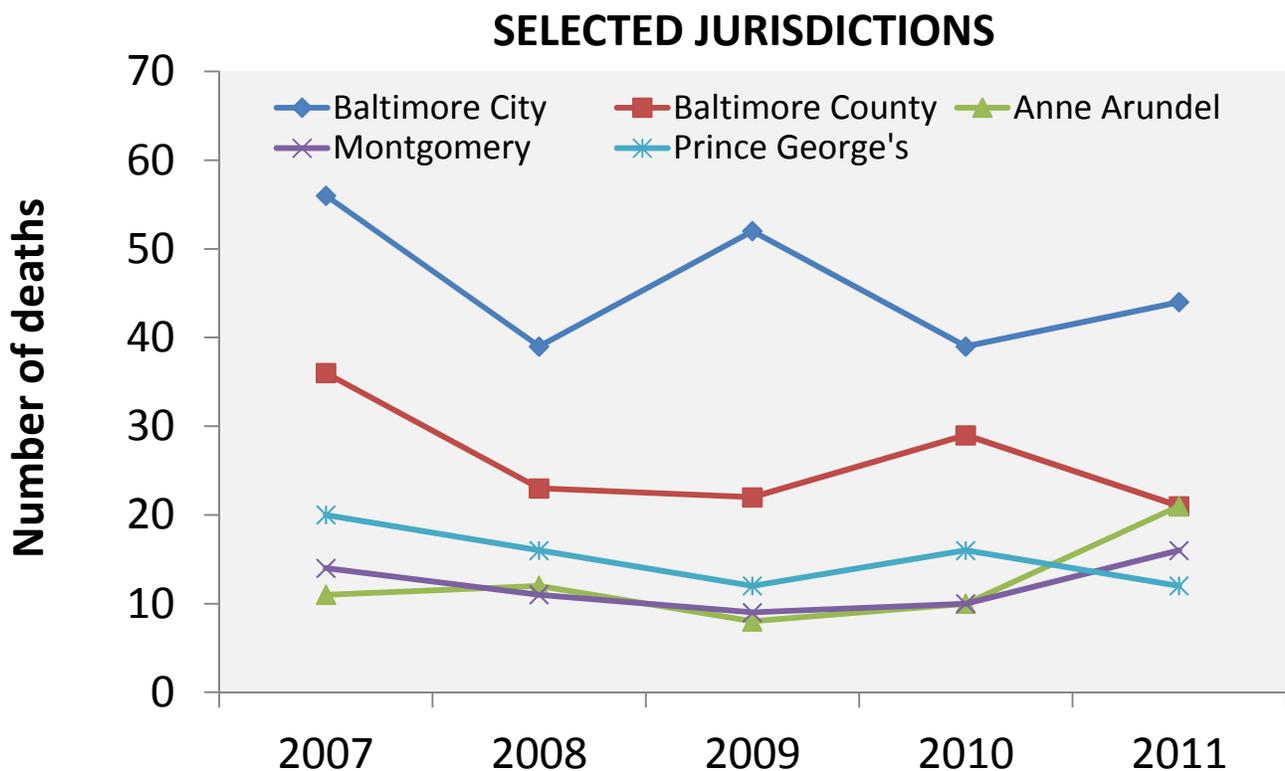
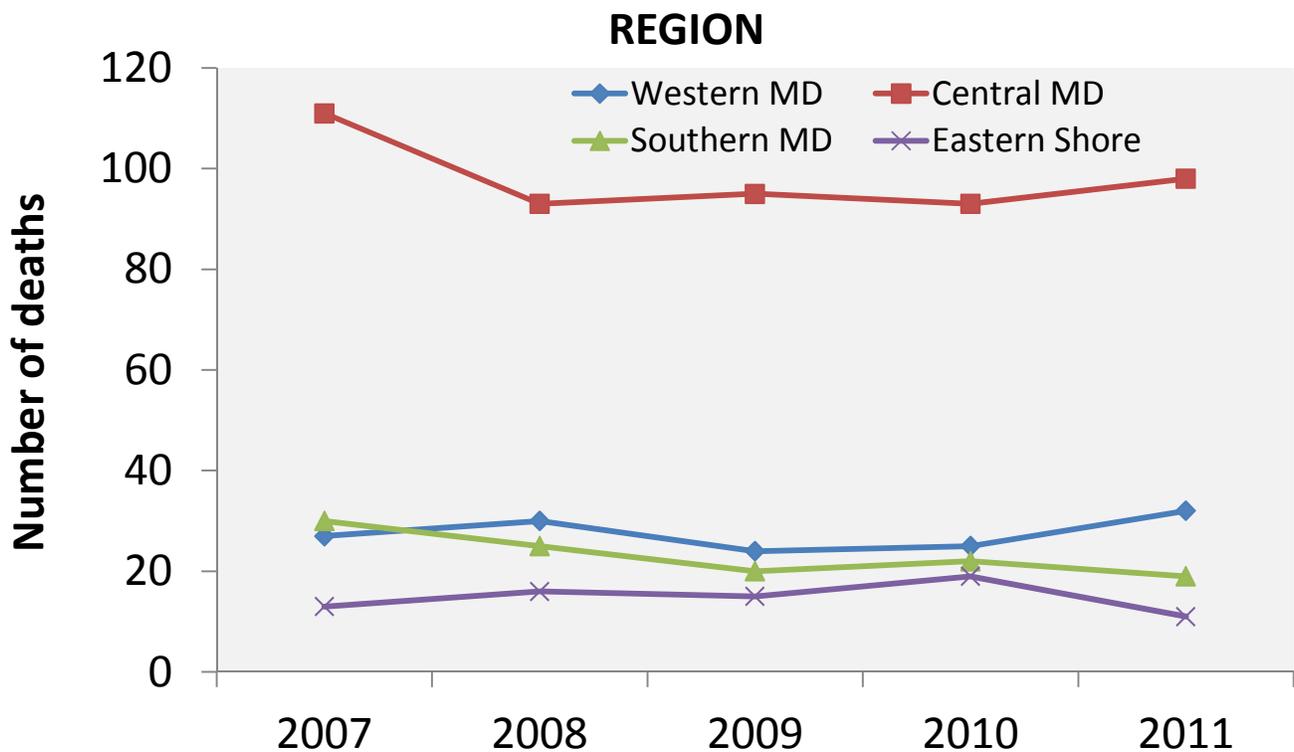


Figure 35. Number of Alcohol-Related Deaths by Place of Occurrence, Maryland, 2007-2011.



COCAINE-RELATED DEATHS

Figure 36. Number of Cocaine-Related Deaths Occurring in Maryland, 2007-2011.

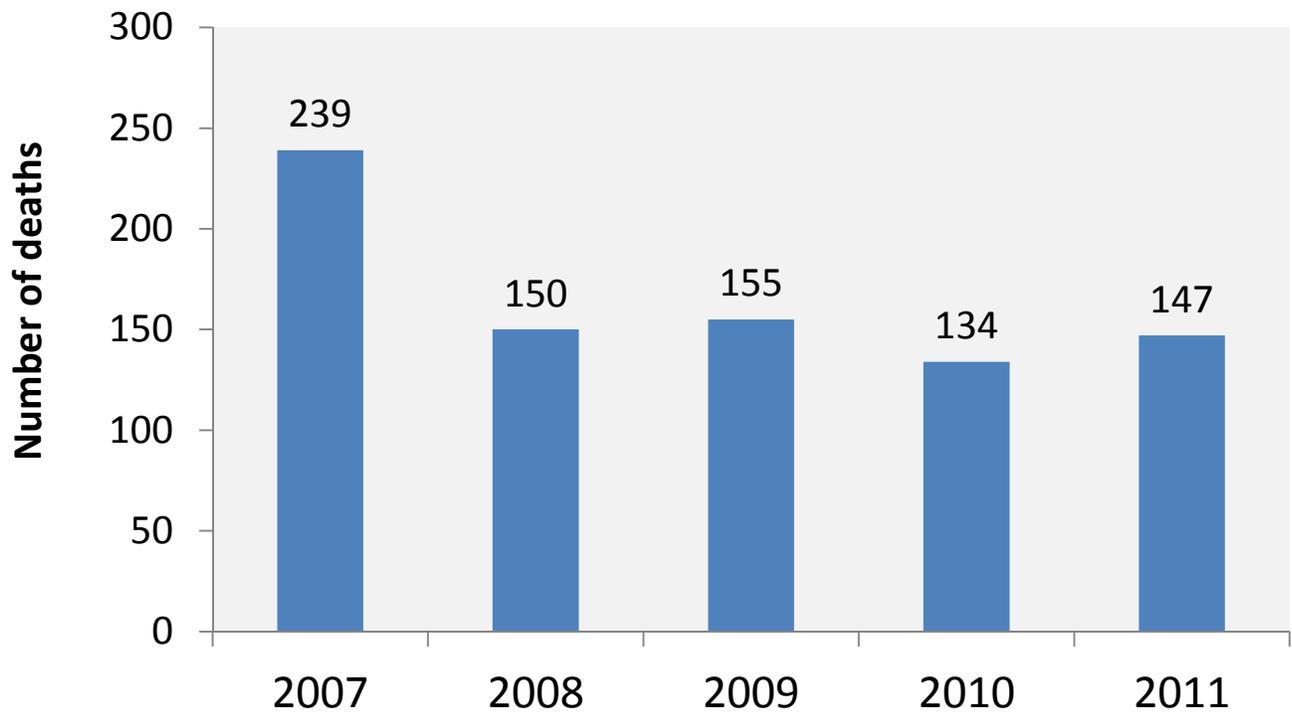


Figure 37. Number of Cocaine-Related Deaths Occurring in Maryland by Age, Race/Ethnicity and Gender, 2007-2011.

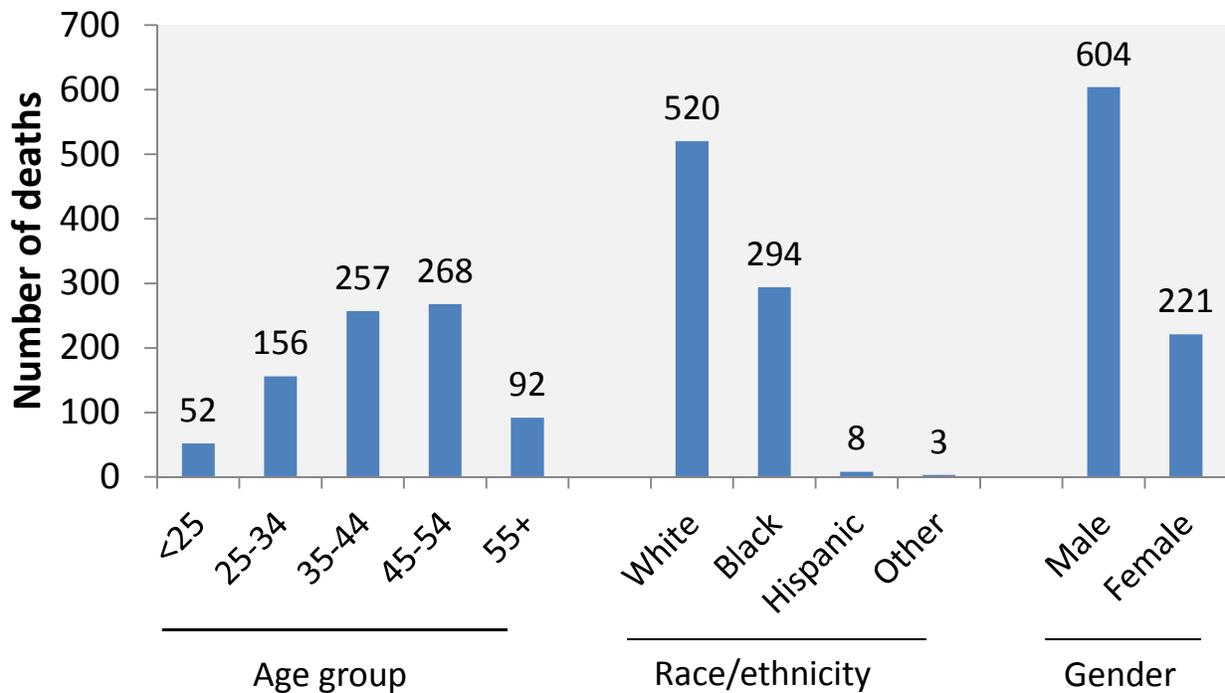


Figure 38. Number of Cocaine-Related Deaths Occurring in Maryland by Age Group, Race/Ethnicity and Gender, 2007-2011.

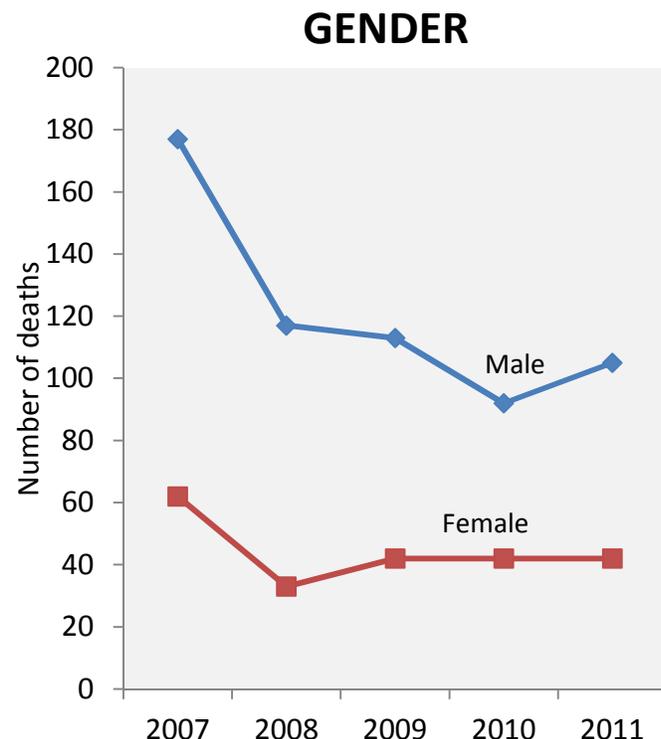
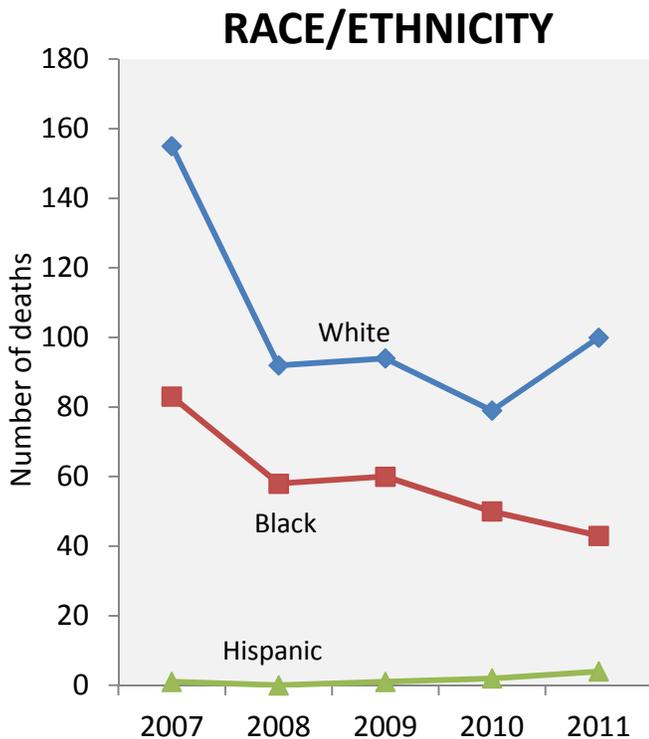
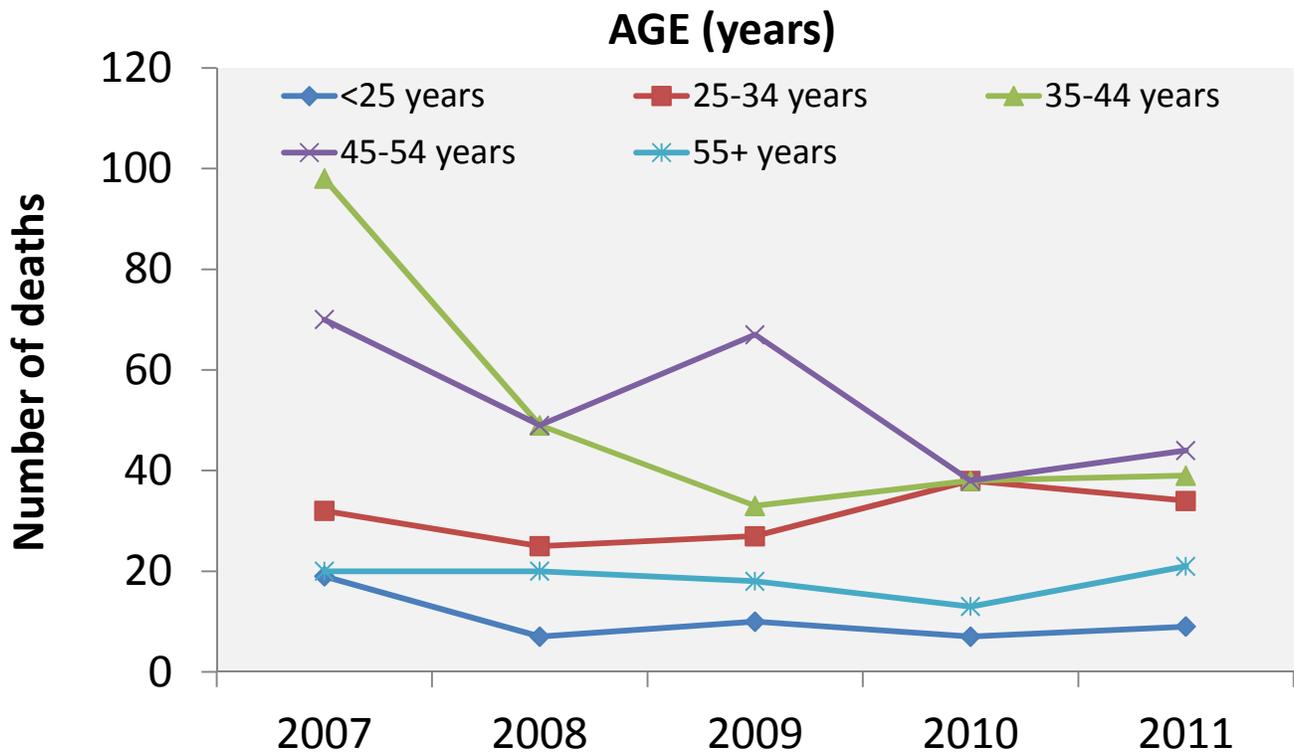
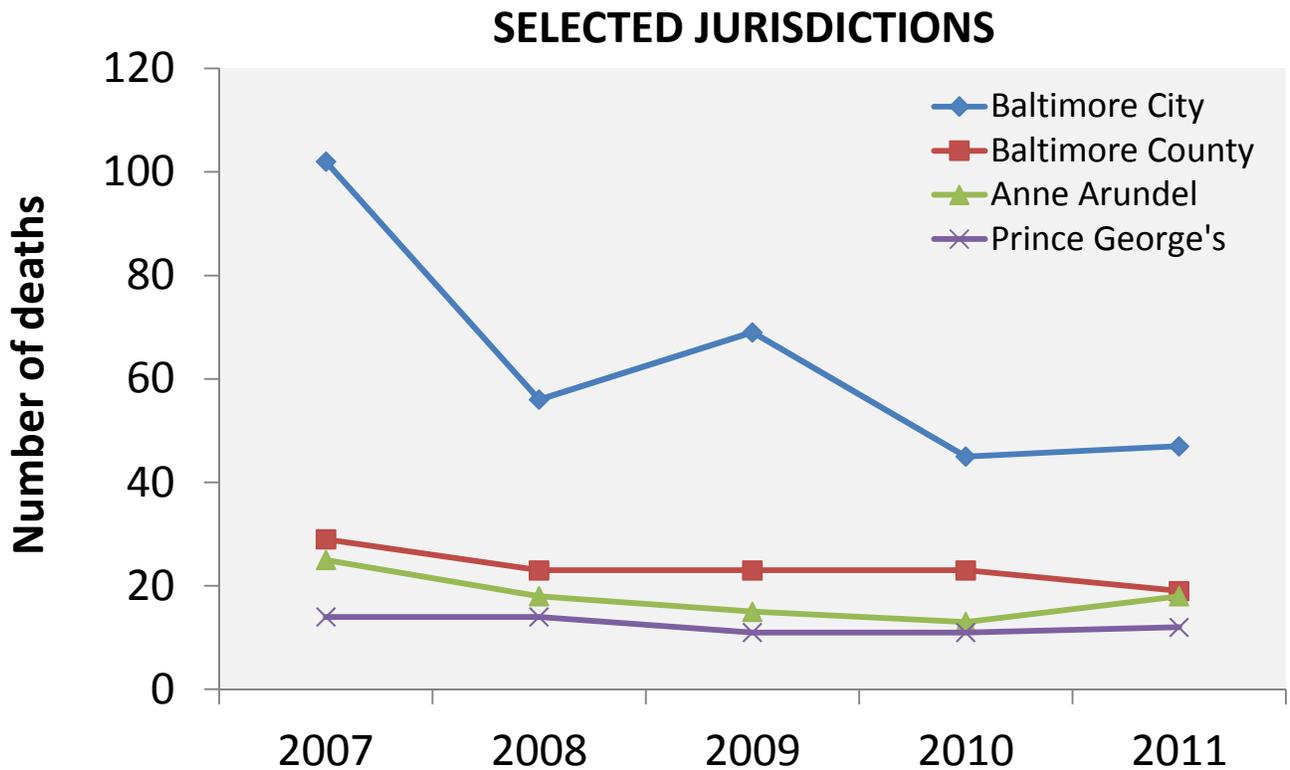
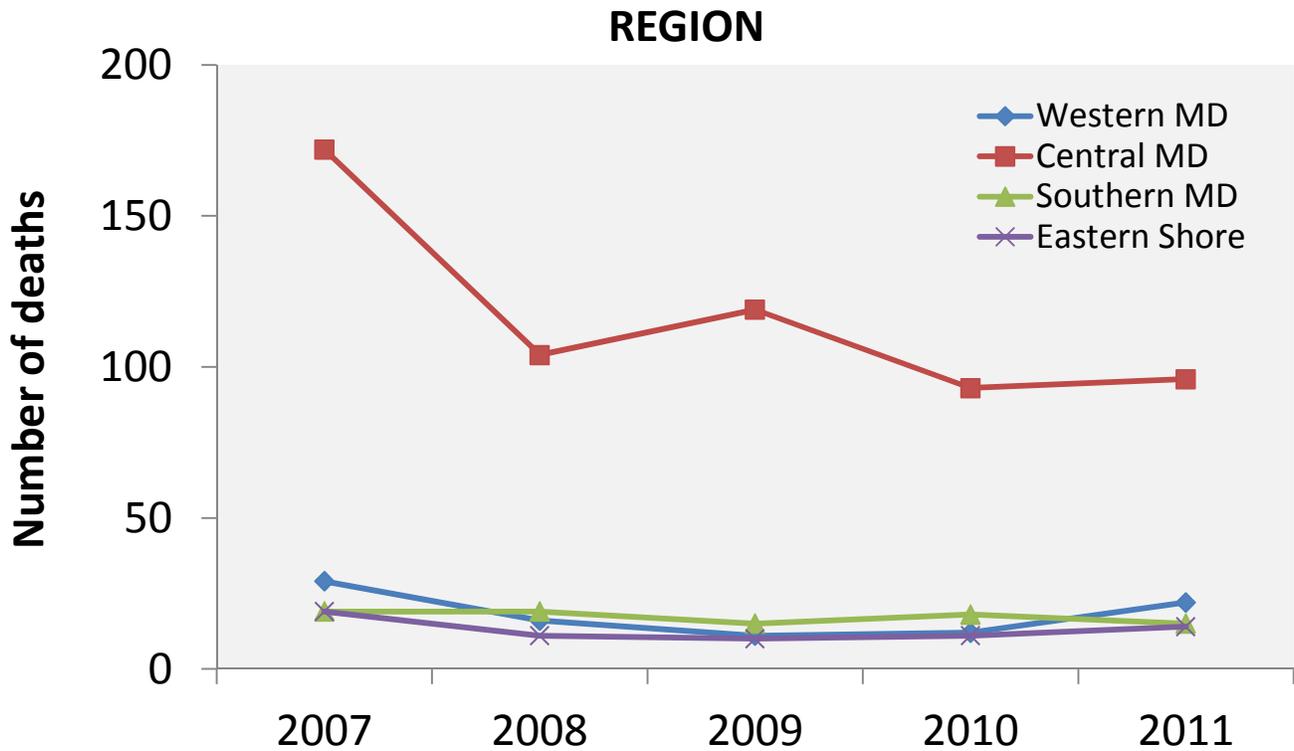


Figure 39. Number of Cocaine-Related Deaths by Place of Occurrence, Maryland, 2007-2011.



BENZODIAZEPINE- RELATED DEATHS

Figure 40. Number of Benzodiazepine-Related Deaths Occurring in Maryland, 2007-2011.

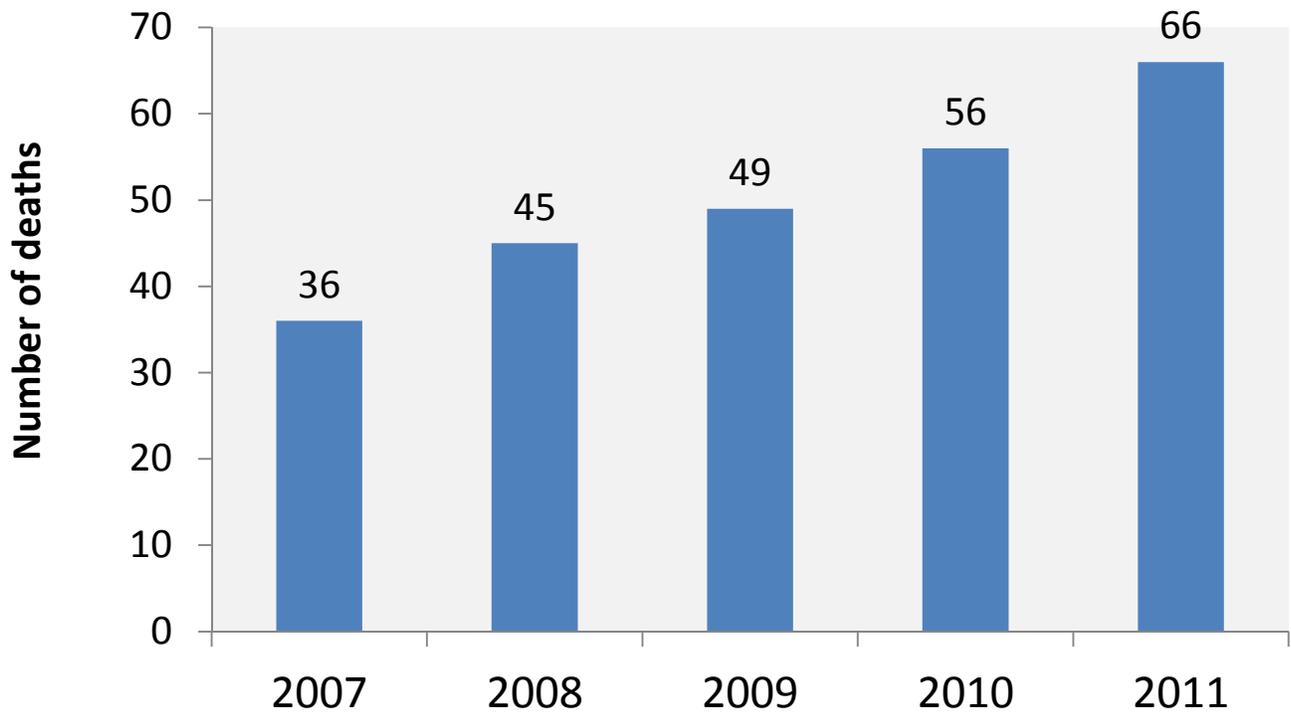


Figure 41. Number of Benzodiazepine-Related Deaths Occurring in Maryland by Age, Race/Ethnicity and Gender, 2007-2011.

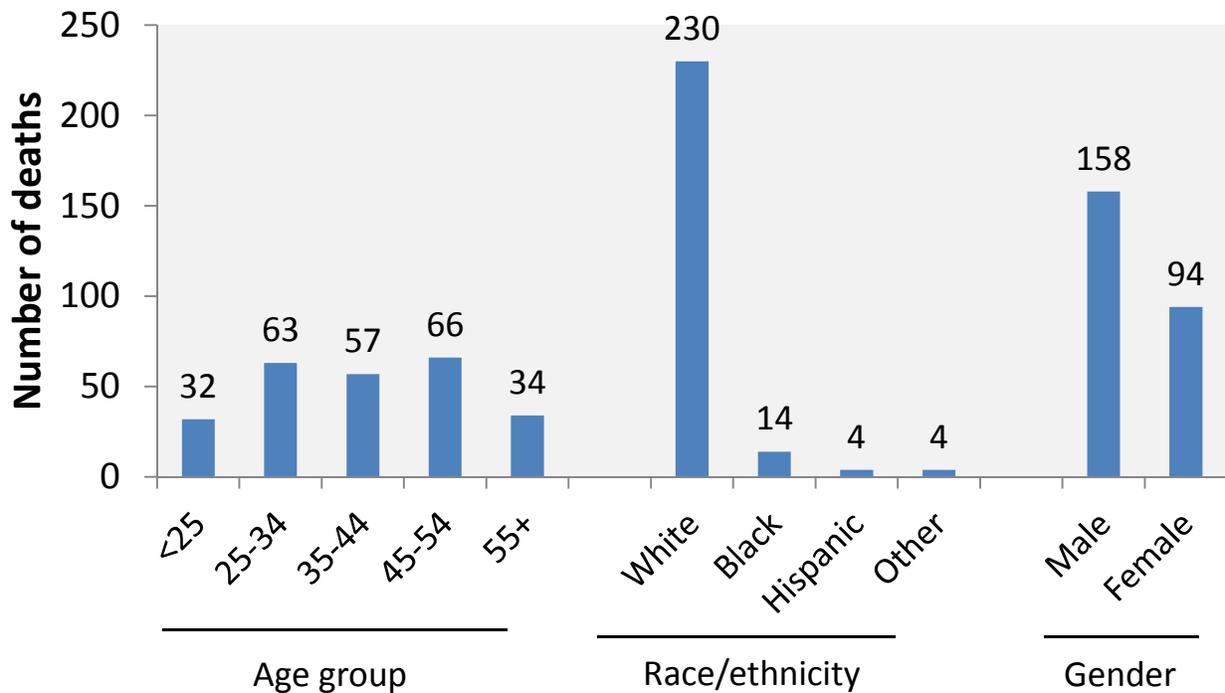


Figure 42. Number of Benzodiazepine-Related Deaths Occurring in Maryland by Age Group, Race/Ethnicity and Gender, 2007-2011.

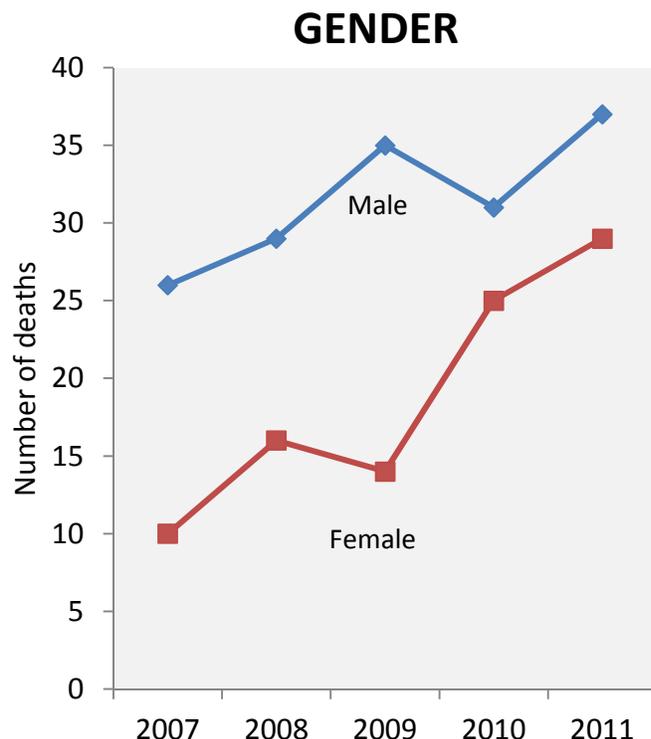
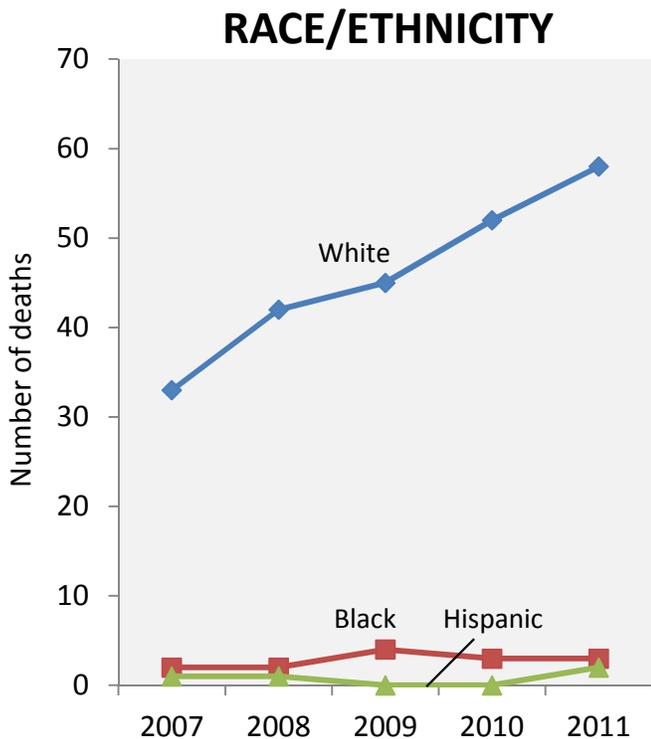
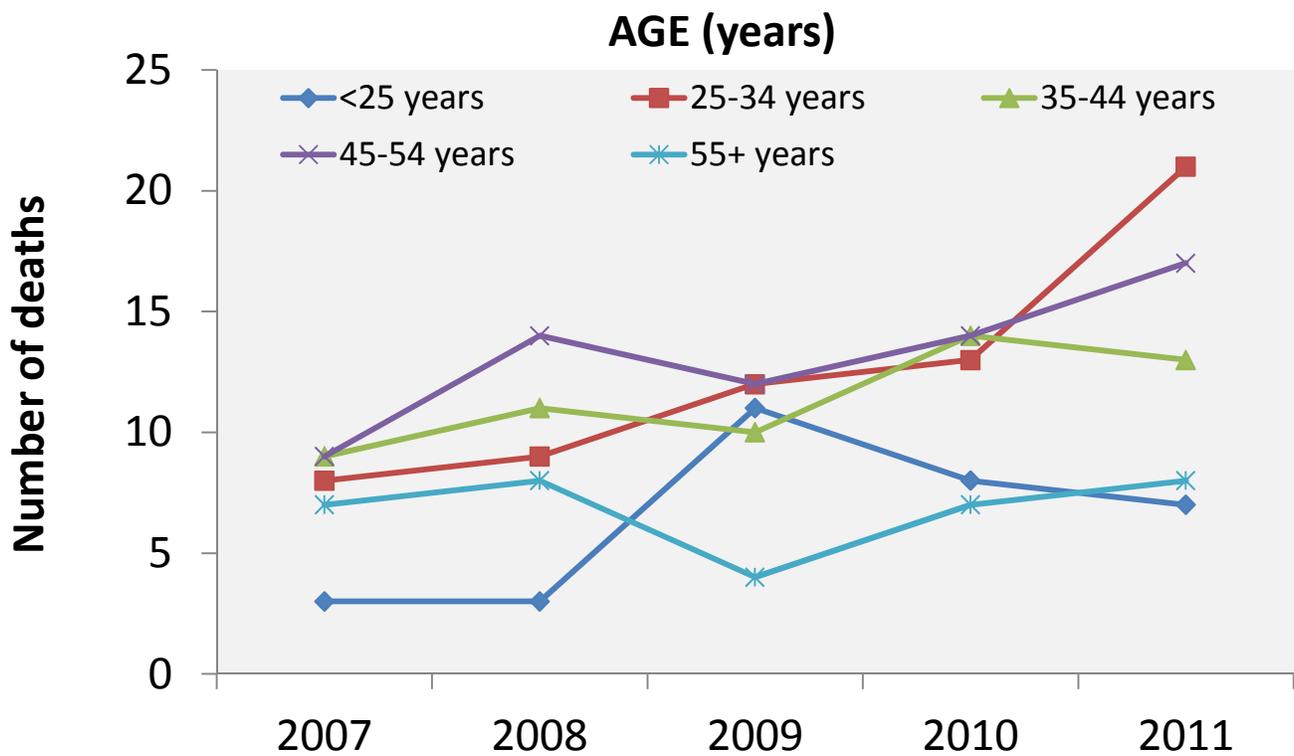
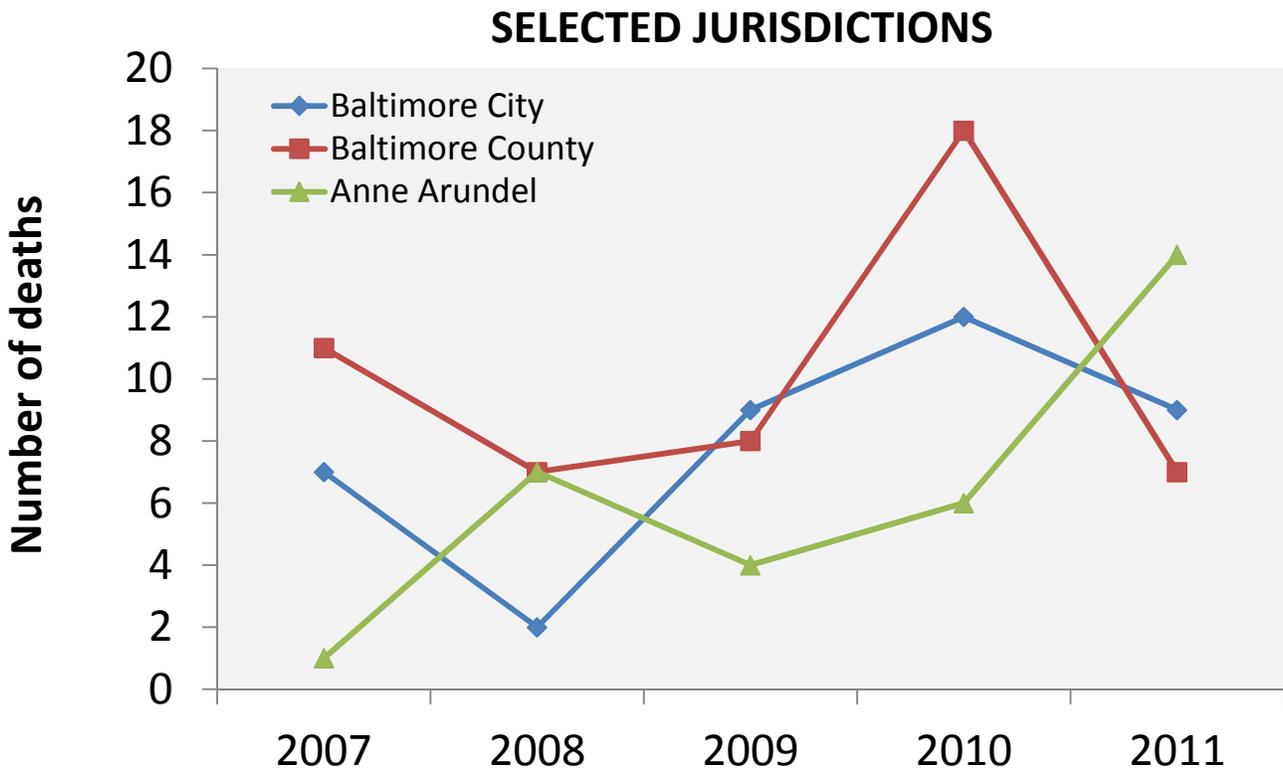
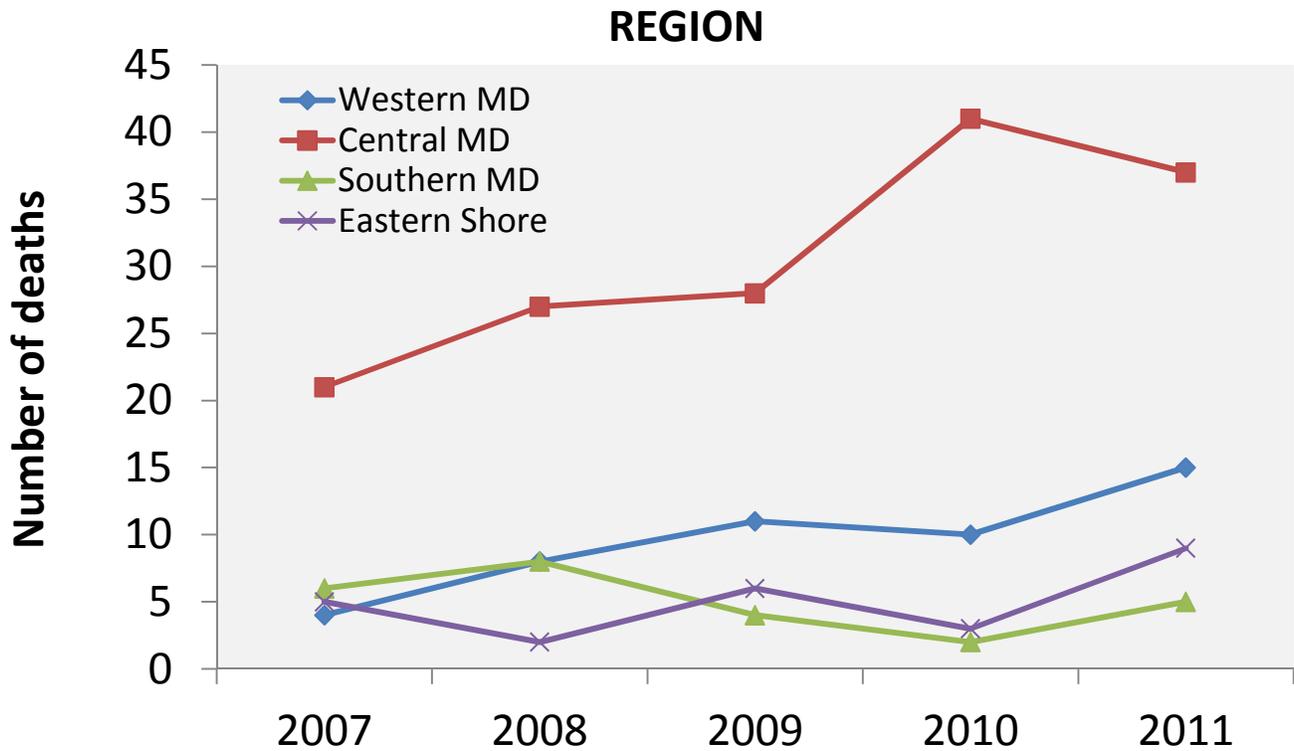
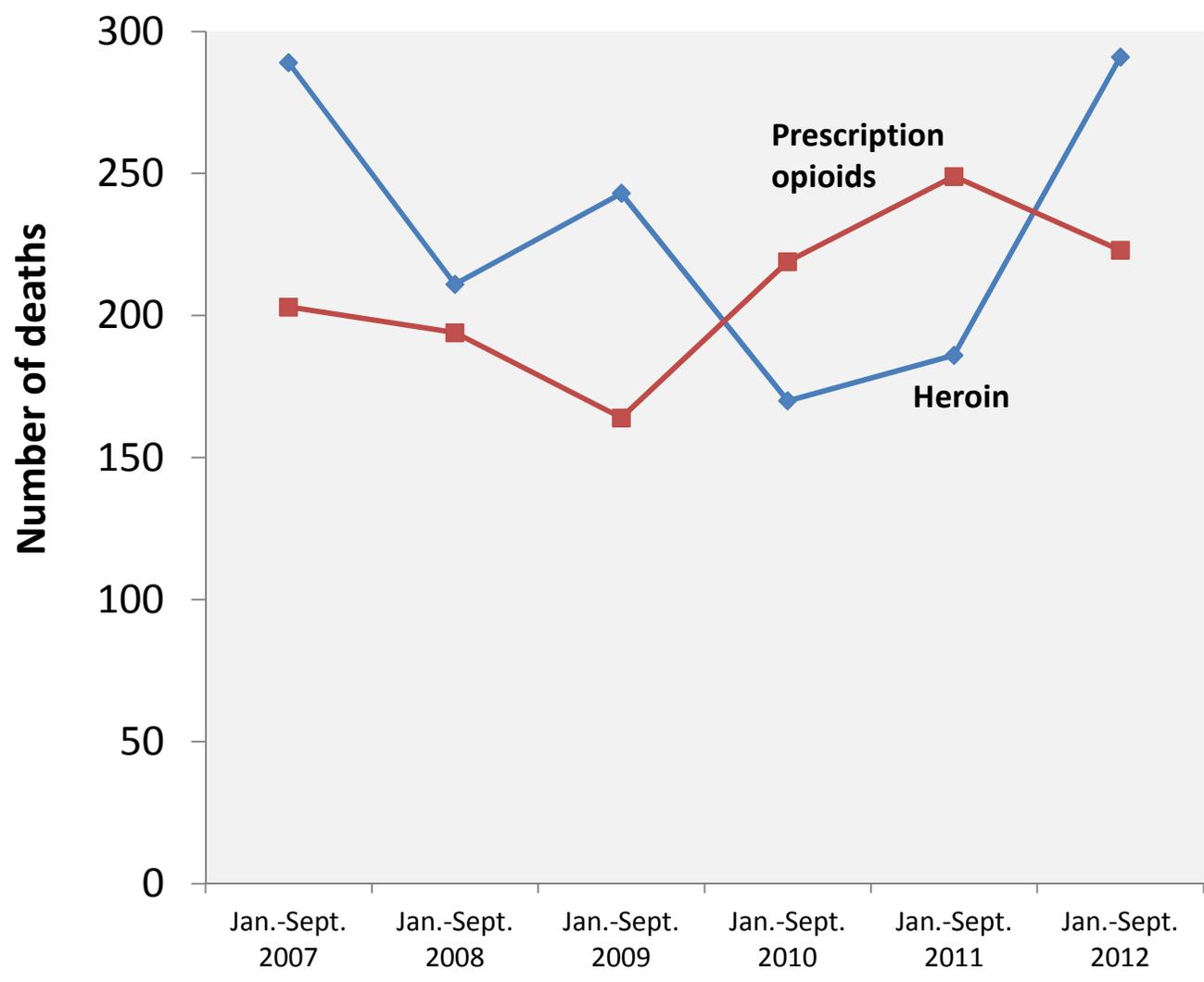


Figure 43. Number of Benzodiazepine-Related Deaths by Place of Occurrence, Maryland, 2007-2011.



EMERGING TRENDS 2012

Figure 44. Number of Drug Intoxication Deaths by Substance¹, Maryland, January-September, 2007-2012.



Emerging trends—2012

- Sharp increase in heroin deaths
- Decrease in prescription opioid deaths

DEATH RATES BY PLACE OF RESIDENCE

Figure 45. Crude Death Rates for Total Intoxication Deaths by Place of Residence, Maryland, 2007-2011.

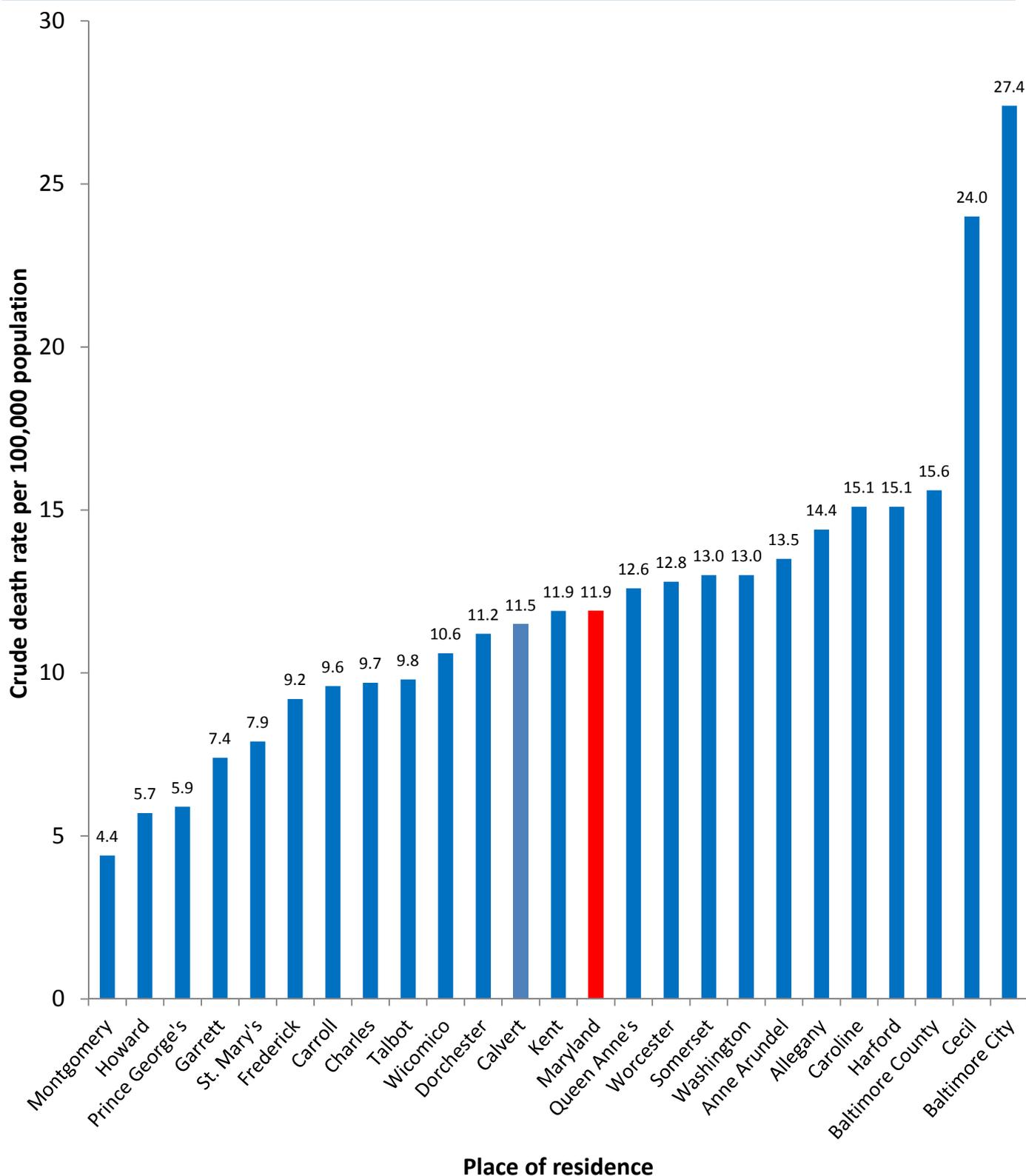
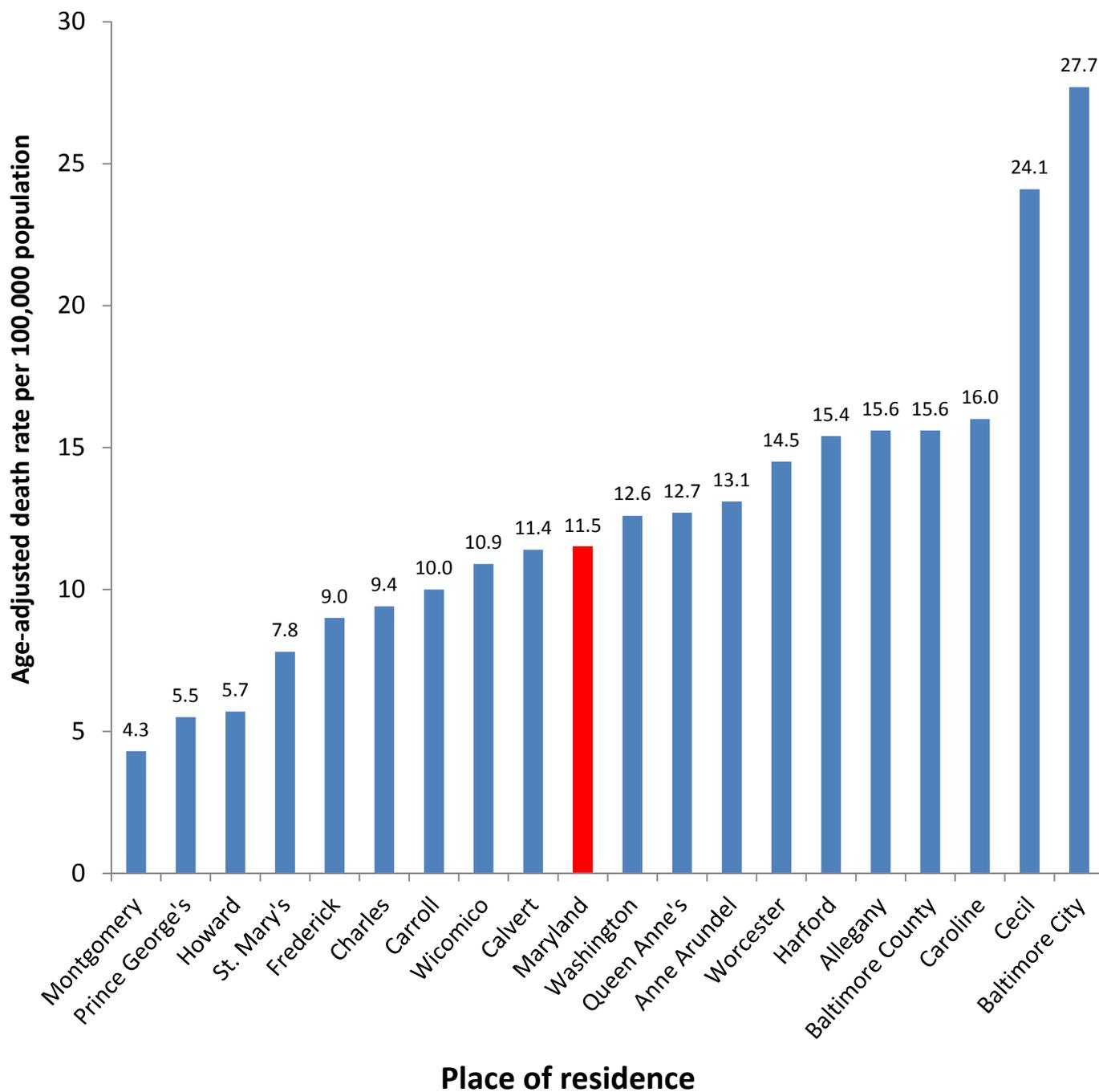


Figure 46. Age-Adjusted Death Rates^{1,2} for Total Intoxication Deaths by Place of Residence, Maryland, 2007-2011.



¹Age-adjusted to the 2000 U.S. standard population

²Since rates based on fewer than 20 deaths are considered unreliable, rates are only shown for jurisdictions with 20 or more intoxication deaths over the five-year period.

TABLES

TABLE 1. TOTAL NUMBER OF INTOXICATION DEATHS BY COUNTY OF OCCURRENCE, 2007-2011.

TOTAL INTOXICATION DEATHS

REGION AND POLITICAL SUBDIVISION	2007	2008	2009	2010	2011
MARYLAND	777	658	709	643	663
WESTERN AREA	105	96	94	96	108
GARRETT	1	3	2	3	2
ALLEGANY	13	9	9	15	12
WASHINGTON	16	26	17	20	21
FREDERICK	22	15	23	20	29
MONTGOMERY	53	43	43	38	44
CENTRAL AREA	522	425	465	407	414
BALTIMORE CITY	274	176	232	172	165
BALTIMORE COUNTY	122	116	104	113	104
ANNE ARUNDEL	68	66	60	56	79
CARROLL	12	16	21	14	8
HOWARD	16	18	16	9	20
HARFORD	30	33	32	43	38
SOUTHERN AREA	84	84	90	73	72
CALVERT	13	7	13	6	12
CHARLES	13	16	11	13	10
ST. MARY'S	6	9	9	12	8
PRINCE GEORGE'S	52	52	57	42	42
EASTERN SHORE AREA	66	53	60	67	69
CECIL	24	9	24	24	28
KENT	3	4	2	5	2
QUEEN ANNE'S	4	5	3	4	5
CAROLINE	1	4	2	2	11
TALBOT	5	4	3	3	1
DORCHESTER	3	5	2	6	2
WICOMICO	9	11	12	12	11
SOMERSET	6	3	4	1	3
WORCESTER	11	8	8	10	6

TABLE 2. INTOXICATION DEATHS BY SUBSTANCE AND COUNTY OF OCCURRENCE, 2007-2011.

TOTAL OPIOID-RELATED DEATHS

REGION AND POLITICAL SUBDIVISION	2007	2008	2009	2010	2011
MARYLAND	597	499	552	498	522
WESTERN AREA	66	64	69	62	80
GARRETT	0	2	2	1	1
ALLEGANY	11	7	6	11	8
WASHINGTON	11	21	13	13	16
FREDERICK	12	7	18	12	27
MONTGOMERY	32	27	30	25	28
CENTRAL AREA	431	349	371	333	336
BALTIMORE CITY	245	146	194	139	140
BALTIMORE COUNTY	87	91	81	93	91
ANNE ARUNDEL	52	55	43	44	53
CARROLL	10	14	15	11	7
HOWARD	14	13	11	8	17
HARFORD	23	30	27	38	28
SOUTHERN AREA	49	51	64	49	49
CALVERT	11	5	10	4	10
CHARLES	8	9	10	9	9
ST. MARY'S	3	7	7	10	6
PRINCE GEORGE'S	27	30	37	26	24
EASTERN SHORE AREA	51	35	48	54	57
CECIL	22	8	21	21	24
KENT	2	4	2	3	1
QUEEN ANNE'S	4	2	2	4	4
CAROLINE	0	2	1	2	8
TALBOT	3	3	2	2	1
DORCHESTER	2	3	1	6	2
WICOMICO	6	6	10	9	10
SOMERSET	5	3	2	1	3
WORCESTER	7	4	7	6	4

TABLE 2. INTOXICATION DEATHS BY SUBSTANCE AND COUNTY OF OCCURRENCE, 2007-2011. — Continued

HEROIN-RELATED DEATHS

REGION AND POLITICAL SUBDIVISION	2007	2008	2009	2010	2011
MARYLAND	382	280	348	238	245
WESTERN AREA	33	35	37	27	33
GARRETT	0	0	0	0	1
ALLEGANY	3	4	2	3	3
WASHINGTON	5	13	11	6	8
FREDERICK	8	4	9	6	10
MONTGOMERY	17	14	15	12	11
CENTRAL AREA	307	199	256	171	165
BALTIMORE CITY	192	104	146	93	76
BALTIMORE COUNTY	52	50	52	42	38
ANNE ARUNDEL	36	24	30	18	24
CARROLL	8	5	7	3	2
HOWARD	8	8	7	3	10
HARFORD	11	8	14	12	15
SOUTHERN AREA	27	31	35	25	26
CALVERT	4	3	7	1	5
CHARLES	2	5	3	6	5
ST. MARY'S	1	2	0	4	4
PRINCE GEORGE'S	20	21	25	14	12
EASTERN SHORE AREA	15	15	20	15	21
CECIL	8	4	12	4	8
KENT	1	1	0	0	1
QUEEN ANNE'S	0	1	2	2	2
CAROLINE	0	0	0	0	3
TALBOT	1	2	0	0	1
DORCHESTER	1	2	0	2	1
WICOMICO	1	3	3	5	3
SOMERSET	2	1	1	0	1
WORCESTER	1	1	2	2	1

TABLE 2. INTOXICATION DEATHS BY SUBSTANCE AND COUNTY OF OCCURRENCE, 2007-2011. — Continued

PRESCRIPTION OPIOID-RELATED DEATHS

REGION AND POLITICAL SUBDIVISION	2007	2008	2009	2010	2011
MARYLAND	283	260	244	305	335
WESTERN AREA	38	35	38	36	57
GARRETT	0	2	2	1	1
ALLEGANY	8	5	6	8	5
WASHINGTON	7	10	3	7	11
FREDERICK	6	3	9	6	20
MONTGOMERY	17	15	18	14	20
CENTRAL AREA	177	179	145	193	207
BALTIMORE CITY	88	54	63	61	80
BALTIMORE COUNTY	44	51	36	58	66
ANNE ARUNDEL	22	34	19	31	33
CARROLL	3	10	9	8	5
HOWARD	6	6	4	5	8
HARFORD	14	24	14	30	15
SOUTHERN AREA	25	24	30	32	29
CALVERT	8	2	3	3	7
CHARLES	6	6	7	4	4
ST. MARY'S	3	5	7	9	3
PRINCE GEORGE'S	8	11	13	16	15
EASTERN SHORE AREA	43	22	31	44	42
CECIL	18	5	10	20	20
KENT	2	3	2	3	1
QUEEN ANNE'S	4	1	1	2	2
CAROLINE	0	2	1	2	5
TALBOT	2	1	2	2	0
DORCHESTER	2	1	1	4	1
WICOMICO	5	3	8	6	7
SOMERSET	4	3	1	1	3
WORCESTER	6	3	5	4	3

TABLE 2. INTOXICATION DEATHS BY SUBSTANCE AND COUNTY OF OCCURRENCE, 2007-2011. — Continued

OXYCODONE-RELATED DEATHS

REGION AND POLITICAL SUBDIVISION	2007	2008	2009	2010	2011
MARYLAND	62	69	79	111	115
WESTERN AREA	11	14	17	14	20
GARRETT	0	1	0	0	0
ALLEGANY	3	0	1	2	0
WASHINGTON	0	4	2	2	5
FREDERICK	1	2	5	3	6
MONTGOMERY	7	7	9	7	9
CENTRAL AREA	30	44	33	57	61
BALTIMORE CITY	7	6	10	5	15
BALTIMORE COUNTY	8	14	14	20	21
ANNE ARUNDEL	5	9	3	9	14
CARROLL	2	3	3	5	3
HOWARD	3	2	0	4	1
HARFORD	5	10	3	14	7
SOUTHERN AREA	12	8	15	15	14
CALVERT	3	1	2	2	4
CHARLES	5	3	4	2	3
ST. MARY'S	1	2	5	3	2
PRINCE GEORGE'S	3	2	4	8	5
EASTERN SHORE AREA	9	3	14	25	20
CECIL	3	0	3	13	9
KENT	0	0	1	2	0
QUEEN ANNE'S	1	0	1	1	1
CAROLINE	0	0	1	1	0
TALBOT	0	0	0	1	0
DORCHESTER	1	0	0	2	1
WICOMICO	1	1	4	2	5
SOMERSET	0	0	1	1	2
WORCESTER	3	2	3	2	2

TABLE 2. INTOXICATION DEATHS BY SUBSTANCE AND COUNTY OF OCCURRENCE, 2007-2011. — Continued

METHADONE-RELATED DEATHS

REGION AND POLITICAL SUBDIVISION	2007	2008	2009	2010	2011
MARYLAND	196	155	132	170	168
WESTERN AREA	20	17	14	13	19
GARRETT	0	0	1	1	0
ALLEGANY	2	4	2	3	4
WASHINGTON	6	4	0	3	5
FREDERICK	6	1	4	1	4
MONTGOMERY	6	8	7	5	6
CENTRAL AREA	132	111	95	125	125
BALTIMORE CITY	74	43	50	53	63
BALTIMORE COUNTY	31	29	17	35	31
ANNE ARUNDEL	15	18	12	17	17
CARROLL	1	6	4	2	2
HOWARD	2	1	4	1	5
HARFORD	9	14	8	17	7
SOUTHERN AREA	12	15	11	14	10
CALVERT	5	0	1	1	2
CHARLES	2	4	2	1	0
ST. MARY'S	2	3	3	5	1
PRINCE GEORGE'S	3	8	5	7	7
EASTERN SHORE AREA	32	12	12	18	14
CECIL	15	2	6	9	9
KENT	2	2	1	2	1
QUEEN ANNE'S	2	1	1	1	1
CAROLINE	0	0	0	1	1
TALBOT	2	0	2	1	0
DORCHESTER	1	1	0	0	0
WICOMICO	3	2	1	3	1
SOMERSET	3	2	0	0	1
WORCESTER	4	2	1	1	0

TABLE 2. INTOXICATION DEATHS BY SUBSTANCE AND COUNTY OF OCCURRENCE, 2007-2011. — Continued

FENTANYL-RELATED DEATHS

REGION AND POLITICAL SUBDIVISION	2007	2008	2009	2010	2011
MARYLAND	25	23	26	38	25
WESTERN AREA	5	1	2	7	6
GARRETT	0	1	0	0	1
ALLEGANY	3	0	1	2	1
WASHINGTON	0	0	0	2	1
FREDERICK	0	0	0	2	3
MONTGOMERY	2	0	1	1	0
CENTRAL AREA	13	18	16	20	10
BALTIMORE CITY	3	2	4	4	2
BALTIMORE COUNTY	5	9	9	6	4
ANNE ARUNDEL	3	4	3	5	2
CARROLL	0	2	0	2	0
HOWARD	1	0	0	0	0
HARFORD	1	1	0	3	2
SOUTHERN AREA	1	0	4	2	2
CALVERT	0	0	1	0	1
CHARLES	0	0	0	0	0
ST. MARY'S	0	0	1	1	1
PRINCE GEORGE'S	1	0	2	1	0
EASTERN SHORE AREA	6	4	4	9	7
CECIL	2	1	0	2	2
KENT	0	0	0	0	0
QUEEN ANNE'S	1	0	0	0	0
CAROLINE	0	0	0	1	4
TALBOT	1	1	0	1	0
DORCHESTER	0	0	0	2	0
WICOMICO	1	1	3	1	1
SOMERSET	1	1	0	1	0
WORCESTER	0	0	1	1	0

TABLE 2. INTOXICATION DEATHS BY SUBSTANCE AND COUNTY OF OCCURRENCE, 2007-2011. — Continued

TRAMADOL-RELATED DEATHS

REGION AND POLITICAL SUBDIVISION	2007	2008	2009	2010	2011
MARYLAND	8	15	15	15	24
WESTERN AREA	1	2	4	2	7
GARRETT	0	1	1	0	0
ALLEGANY	1	1	0	1	0
WASHINGTON	0	0	0	1	4
FREDERICK	0	0	1	0	1
MONTGOMERY	0	0	2	0	2
CENTRAL AREA	5	9	7	9	12
BALTIMORE CITY	3	3	3	4	5
BALTIMORE COUNTY	1	4	2	2	4
ANNE ARUNDEL	0	0	0	2	2
CARROLL	0	0	1	0	0
HOWARD	1	2	0	0	1
HARFORD	0	0	1	1	0
SOUTHERN AREA	2	1	2	2	2
CALVERT	1	1	0	0	1
CHARLES	0	0	1	0	0
ST. MARY'S	0	0	0	1	0
PRINCE GEORGE'S	1	0	1	1	1
EASTERN SHORE AREA	0	3	2	2	3
CECIL	0	1	0	0	1
KENT	0	1	0	0	0
QUEEN ANNE'S	0	0	0	0	0
CAROLINE	0	1	0	1	1
TALBOT	0	0	0	0	0
DORCHESTER	0	0	0	1	0
WICOMICO	0	0	2	0	0
SOMERSET	0	0	0	0	1
WORCESTER	0	0	0	0	0

TABLE 2. INTOXICATION DEATHS BY SUBSTANCE AND COUNTY OF OCCURRENCE, 2007-2011. — Continued

ALCOHOL-RELATED DEATHS

REGION AND POLITICAL SUBDIVISION	2007	2008	2009	2010	2011
MARYLAND	181	164	154	159	160
WESTERN AREA	27	30	24	25	32
GARRETT	1	2	1	1	1
ALLEGANY	5	0	3	4	2
WASHINGTON	3	10	3	5	4
FREDERICK	4	7	8	5	9
MONTGOMERY	14	11	9	10	16
CENTRAL AREA	111	93	95	93	98
BALTIMORE CITY	56	39	52	39	44
BALTIMORE COUNTY	36	23	22	29	21
ANNE ARUNDEL	11	12	8	10	21
CARROLL	3	4	4	3	4
HOWARD	2	6	5	3	4
HARFORD	3	9	4	9	4
SOUTHERN AREA	30	25	20	22	19
CALVERT	3	3	4	0	2
CHARLES	5	5	1	4	3
ST. MARY'S	2	1	3	2	2
PRINCE GEORGE'S	20	16	12	16	12
EASTERN SHORE AREA	13	16	15	19	11
CECIL	5	4	7	6	3
KENT	0	0	0	1	0
QUEEN ANNE'S	1	2	0	1	3
CAROLINE	1	0	1	0	1
TALBOT	0	3	0	0	0
DORCHESTER	2	0	0	1	0
WICOMICO	1	5	3	4	2
SOMERSET	0	0	1	0	1
WORCESTER	3	2	3	6	1

TABLE 2. INTOXICATION DEATHS BY SUBSTANCE AND COUNTY OF OCCURRENCE, 2007-2011. — Continued

COCAINE-RELATED DEATHS

REGION AND POLITICAL SUBDIVISION	2007	2008	2009	2010	2011
MARYLAND	239	150	155	134	147
WESTERN AREA	29	16	11	12	22
GARRETT	0	0	0	1	0
ALLEGANY	2	1	1	1	0
WASHINGTON	3	1	0	3	3
FREDERICK	4	2	3	3	7
MONTGOMERY	20	12	7	4	12
CENTRAL AREA	172	104	119	93	96
BALTIMORE CITY	102	56	69	45	47
BALTIMORE COUNTY	29	23	23	23	19
ANNE ARUNDEL	25	18	15	13	18
CARROLL	2	2	3	6	3
HOWARD	6	1	4	1	5
HARFORD	8	4	5	5	4
SOUTHERN AREA	19	19	15	18	15
CALVERT	1	1	1	3	2
CHARLES	3	3	2	2	1
ST. MARY'S	1	1	1	2	0
PRINCE GEORGE'S	14	14	11	11	12
EASTERN SHORE AREA	19	11	10	11	14
CECIL	5	3	4	3	7
KENT	1	2	0	1	0
QUEEN ANNE'S	3	0	1	0	1
CAROLINE	0	0	1	0	1
TALBOT	4	0	1	0	0
DORCHESTER	0	1	0	1	1
WICOMICO	2	4	2	3	3
SOMERSET	1	0	1	1	0
WORCESTER	3	1	0	2	1

TABLE 2. INTOXICATION DEATHS BY SUBSTANCE AND COUNTY OF OCCURRENCE, 2007-2011. — Continued

BENZODIAZEPINE-RELATED DEATHS

REGION AND POLITICAL SUBDIVISION	2007	2008	2009	2010	2011
MARYLAND	36	45	49	56	66
WESTERN AREA	4	8	11	10	15
GARRETT	0	0	1	0	0
ALLEGANY	1	0	1	3	1
WASHINGTON	1	2	2	2	4
FREDERICK	1	1	3	1	4
MONTGOMERY	1	5	4	4	6
CENTRAL AREA	21	27	28	41	37
BALTIMORE CITY	7	2	9	12	9
BALTIMORE COUNTY	11	7	8	18	7
ANNE ARUNDEL	1	7	4	6	14
CARROLL	0	4	3	2	0
HOWARD	1	2	2	1	4
HARFORD	1	5	2	2	3
SOUTHERN AREA	6	8	4	2	5
CALVERT	1	1	1	1	1
CHARLES	1	3	1	0	0
ST. MARY'S	1	0	0	1	1
PRINCE GEORGE'S	3	4	2	0	3
EASTERN SHORE AREA	5	2	6	3	9
CECIL	4	0	2	2	6
KENT	0	0	0	0	0
QUEEN ANNE'S	0	0	0	1	1
CAROLINE	0	0	0	0	0
TALBOT	0	1	0	0	0
DORCHESTER	0	0	1	0	0
WICOMICO	0	0	0	0	1
SOMERSET	1	0	1	0	0
WORCESTER	0	1	2	0	1