

# ***Presentation to the Harford County Council and Board of Health***



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Susan Kelly, Health Officer  
May 10, 2016

# *All Countries and Territories with Active Zika Virus Transmission as of May 9, 2016*



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# *Transmission*

- Primarily through the bite of an infected *Aedes* sp. mosquito
  - Same mosquitoes that spread dengue, chikungunya, and yellow fever
  - Typically lay eggs in containers and standing water
  - Aggressive daytime biters, can also bite at night
  - Prefer to bite people



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# *Aedes aegypti* and *Aedes albopictus*



*Aedes aegypti*



*Aedes albopictus* (Asian tiger mosquito)



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# *Primary vectors*

## ***Ae. aegypti***

- Strong preference for human blood
- Lives around human habitations in urban areas
- Lays eggs and produces larvae preferentially in artificial containers
- Primarily daytime feeder; rests indoors
- High vectorial capacity for Zika (effectiveness of virus transmission in nature)

## ***Ae. albopictus***

- Indiscriminate feeder
- Lives near human habitations in suburban/rural areas
- Lays eggs and produces larvae in natural or artificial containers
- Aggressive, daytime feeder in outdoor areas
- Competent vector of Zika






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## Updated *Aedes* Distribution Maps, March 30, 2016



 *Aedes aegypti*



 *Aedes albopictus*

\*Maps have been updated from a variety of sources. These maps represent CDC's best estimate of the potential range of *Aedes aegypti* and *Aedes albopictus* in the United States. Maps are not meant to represent risk for spread of disease.



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# *Other modes of transmission*

- From mother to child
  - During pregnancy or delivery from a mother already infected
  - To date, no reports of infants getting Zika virus through breastfeeding
- Through infected blood or sexual contact
  - Spread of the virus through blood transfusion and sexual contact has been reported
- Through organ or tissue donation
  - No confirmed cases but theoretically possible



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# *Sexual transmission: what we know*

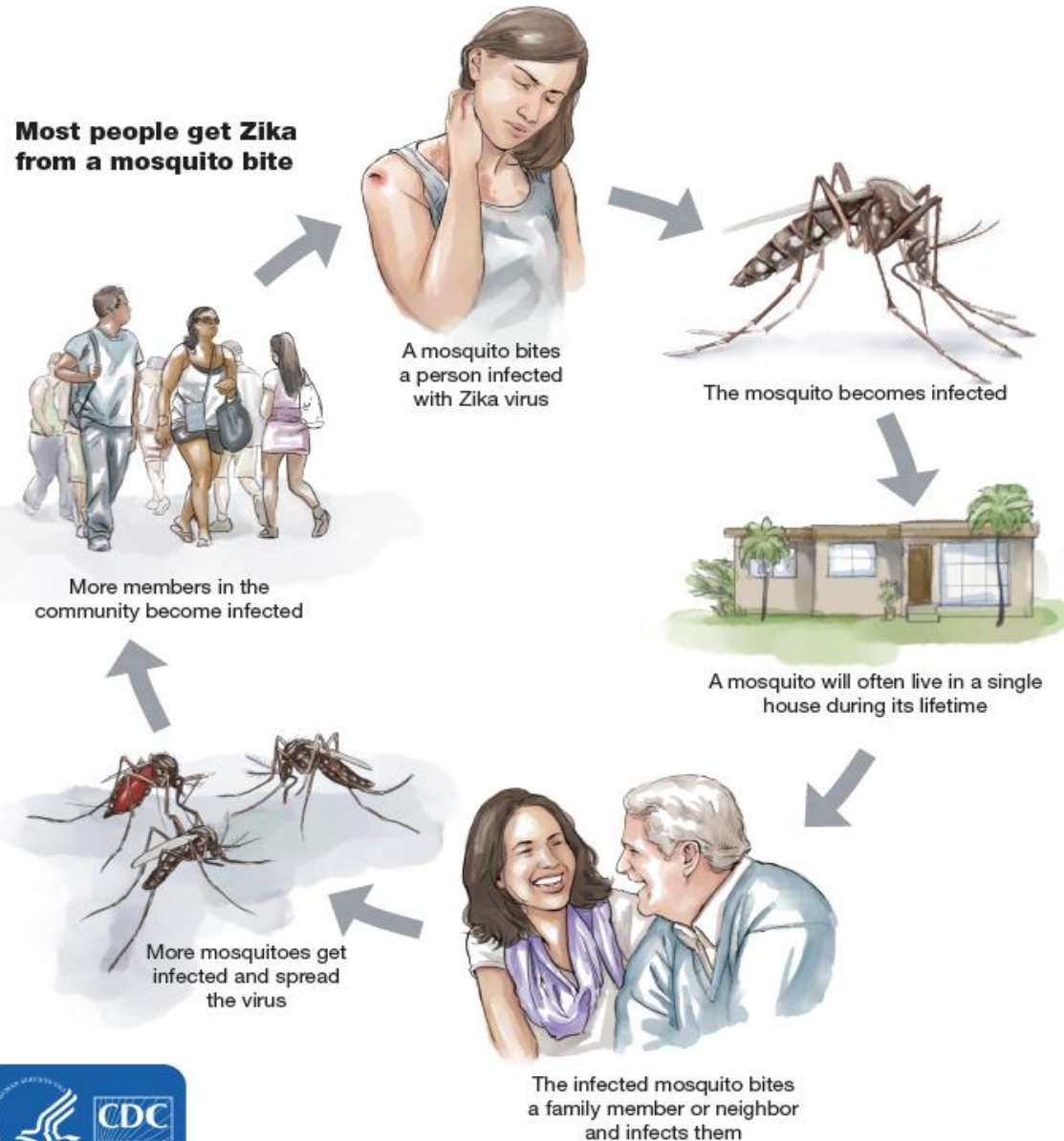
- Zika virus can be spread by a man to his sex partners
- In known cases of likely sexual transmission, the men had Zika symptoms
  - Virus can be spread before, during, and after men have symptoms
- The virus can be present in semen longer than in blood



# PROTECT YOUR FAMILY AND COMMUNITY:

## HOW ZIKA SPREADS

### Most people get Zika from a mosquito bite



### Other, less common ways, people get Zika:

#### During pregnancy

A pregnant woman can pass Zika virus to her fetus during pregnancy. Zika causes microcephaly, a severe birth defect that is a sign of incomplete brain development

#### Through sex

Zika virus can be sexually transmitted by a man to his partners

#### Through blood transfusion

There is a strong possibility that Zika virus can be spread through blood transfusions

# *Incubation Period and Symptoms*

- Incubation period not known
  - Likely few days to 2 weeks
- Most infections are asymptomatic
- Most common symptoms
  - Fever
  - Rash – very common, often itchy
  - Joint pain
  - Conjunctivitis (red eyes)
- Other symptoms include muscle pain and headache

# *Zika & pregnancy*



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- Increased rates of microcephaly noted in Brazil in late 2015
  - 10-20x normal (reported) incidence
- Prior associations with neurological and autoimmune complications in French Polynesia outbreak



Baby with Microcephaly



# Prevention



- 1) There is no treatment for Zika
- 2) Protection from mosquitoes is key
  - Eliminate Zika at its source
- 3) Pregnancy prevention if traveling to a Zika affected country
  - Birth control method and condom use for **8 weeks** after travel if male has **no** symptoms.
  - Birth control method and condom use for **6 months** after travel if male **has** symptoms.
- 4) If a traveler has a pregnant partner, use a condom for the entire pregnancy

# *Treatment*

- No specific antiviral treatment
- No vaccine
- Supportive — rest, fluids, antipyretics, anti-nausea meds
- Acetaminophen for fever and pain
- Avoid aspirin and NSAIDS until dengue ruled out to avoid hemorrhagic complications



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## *When providers want to test patients for Zika*

### **LHD, DHMH personnel can approve testing at DHMH Labs for:**

- Asymptomatic pregnant women with travel history to Zika-affected area during pregnancy or who become pregnant within 2 weeks of travel
- Symptomatic travelers (male and female)
  - With 1 or more major symptoms (fever, rash, conjunctivitis, arthralgia), AND
  - Symptom onset within 2 weeks of last day in Zika-affected country
- Pregnant partners of recent travelers to Zika-affected areas



*U.S. Zika virus cases, as of May 4, 2016*

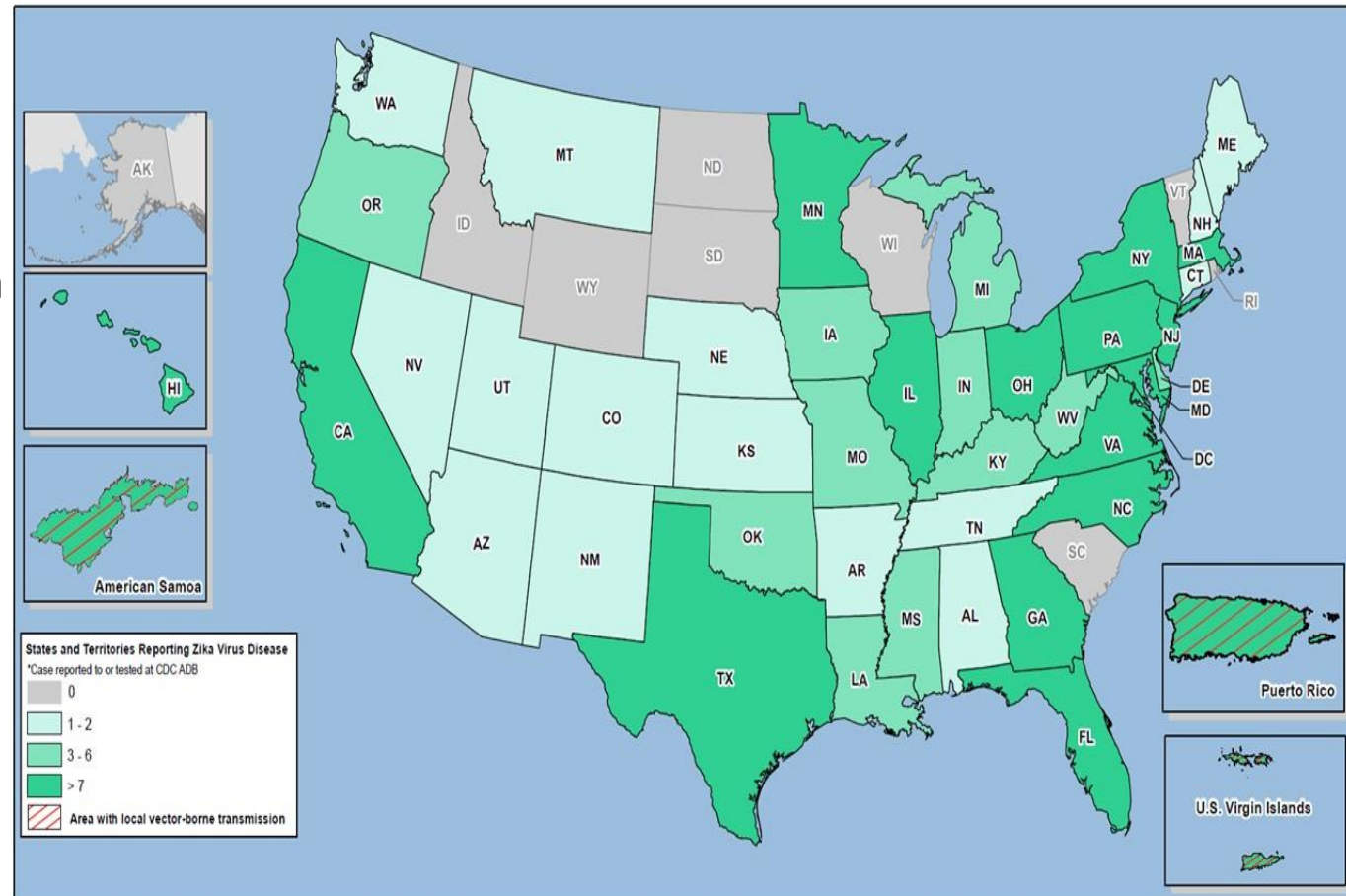


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**Lab-confirmed Zika virus disease cases, reported to ArboNet in US States, as of May 4, 2016**

- Travel-associated Zika virus disease cases reported: 472 (MD=17)
- Locally acquired vector-borne cases reported: 0
- Total: 472
  - Pregnant: 44
  - Sexually transmitted: 10
  - Guillain-Barre syndrome: 1



# *Threat to Maryland*

- No locally acquired mosquito-borne Zika virus disease cases have been reported in the continental US but there have been locally acquired cases in Puerto Rico, the US Virgin Islands, and other U.S. territories
- Many travel-associated Zika cases identified in the U.S. and will continue to increase
- Many infections will not be diagnosed but could potentially serve as source for transmission
- Travel-associated cases could result in local spread of the virus in the U.S., including in Maryland

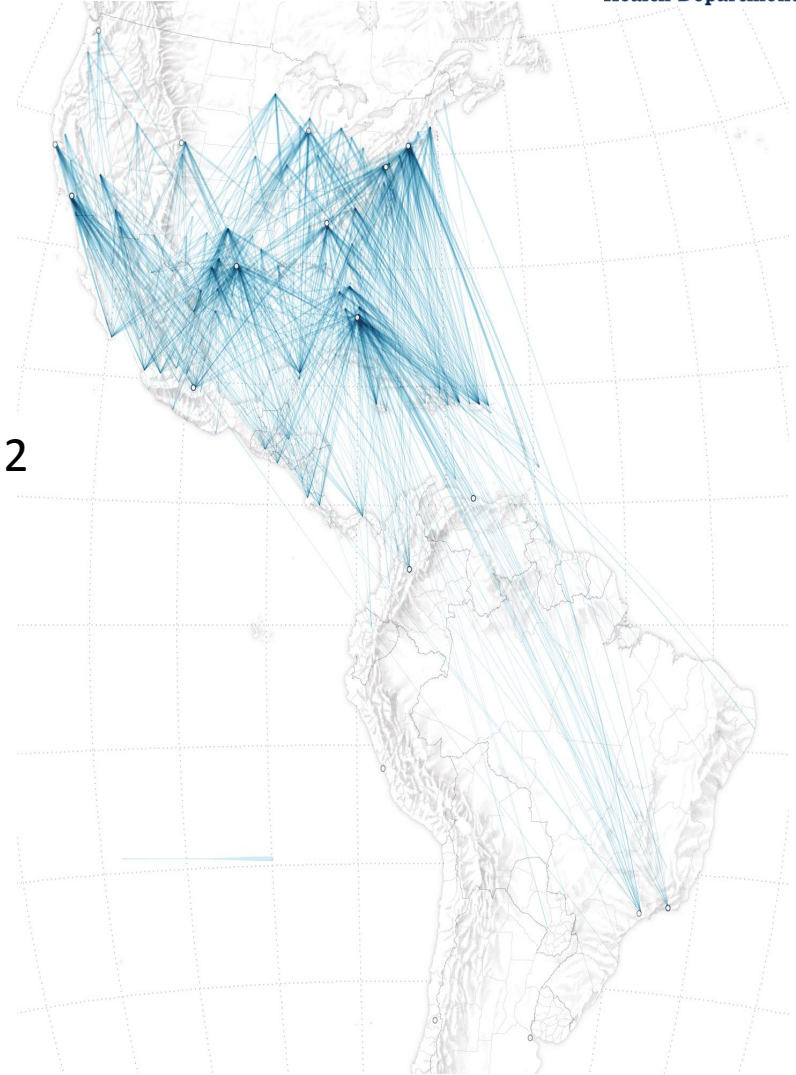


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## *Air travel between U.S. and Zika affected areas*

- ~30 million people fly to the U.S. each year from countries in the Caribbean and Latin America<sup>1</sup>
- Unlikely Zika would spread as quickly or as widely in the U.S.<sup>2</sup>
  - Better public health infrastructure
  - More air conditioning and screening
  - Earlier disease detection
  - Better mosquito control



1. Sources: Bureau of Transportation Statistics (air travel data)

2. "Anticipating the international spread of Zika virus from Brazil," *The Lancet*. Isaac I. Bogoch and Kamran Khan, University of Toronto; Oliver J. Brady and Moritz U.G. Kraemer, University of Oxford



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# *Maryland Public Health Response*

- Providing Zika information to Marylanders via a variety of formats (including website and social media)
- Providing guidance to MD healthcare providers
- Working with providers for Zika testing at DHMH (with focus on pregnant women)
- Coordinating medical management for Zika-infected pregnant women and infants
- Conducting surveillance and epidemiologic investigations
  - Zika infection (reportable)
  - Microcephaly (reportable, including by hospitals)
  - Guillain-Barre syndrome
  - Mosquito
- Controlling mosquitoes (in concert with MD Dept of Agriculture)



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# Aedes Surveillance and Control

- Surveillance
  - Determine presence or absence of *Aedes*
  - Identify types of containers are producing the most mosquitoes for targeting vector control efforts
  - Understand where mosquito populations occur
  - Monitor the effectiveness of vector control efforts
- Control
  - Community and property clean up
  - Application of larvicide
  - Application of adulticide
  - Education about personal protection



## Help Control Mosquitoes that Spread Dengue, Chikungunya, and Zika Viruses

# Bzzzz.

Aside from being itchy and annoying, the bite of an infected female mosquito (*Aedes aegypti* or *Aedes albopictus*) can spread dengue, chikungunya, or Zika viruses. People become infected with dengue, chikungunya, or Zika after being bitten by an infected mosquito.

- Female mosquitoes lay several hundred eggs on the walls of water-filled containers. Eggs stick to containers like glue and remain attached until they are scrubbed off. When water covers the eggs, they hatch and become adults in about a week.
- Adult mosquitoes live inside and outside.
- They prefer to bite during the day.
- A few infected mosquitoes can produce large outbreaks in a community and put your family at risk of becoming sick.

### Protect Yourself, Your Family, and Community from Mosquitoes

## 1.

#### Eliminate standing water in and around your home:

- Once a week, empty and scrub, turn over, cover, or throw out items that hold water, such as tires, buckets, planters, toys, pools, birdbaths, flowerpots, or trash containers. Check inside and outside your home.
- Tightly cover water storage containers (buckets, cisterns, rain barrels) so that mosquitoes cannot get inside to lay eggs.
- For containers without lids, use wire mesh with holes smaller than an adult mosquito.

## 2.

#### If you have a septic tank, follow these steps:

- Repair cracks or gaps.
- Cover open vent or plumbing pipes. Use wire mesh with holes smaller than an adult mosquito.

## 3.

#### Keep mosquitoes out of your home:

- Use screens on windows and doors.
- Repair holes in screens.
- Use air conditioning when available.



Put plants in soil, not in water.



Drain water from pools when not in use.



Recycle used tires or keep them protected from rain.



Drain & dump any standing water.



Weekly, scrub vases & containers to remove mosquito eggs.

## 4.

#### Prevent mosquito bites:

- Use an Environmental Protection Agency (EPA)-registered insect repellent with one of the following active ingredients. All EPA-registered insect repellents are evaluated to make sure they are safe and effective.

Active ingredient	Some brand name examples*
Higher percentages of active ingredient provide longer protection	
DEET	Off!, Cutter, Sawyer, Ultrathon
Picaridin, also known as KBR 3023, Bayrepel, and icaridin	Cutter Advanced, Skin So Soft Bug Guard Plus, Autan (outside the United States)
IR3535	Skin So Soft Bug Guard Plus Expedition, SkinSmart
Oil of lemon eucalyptus (OLE) or para-menthane-diol (PMD)	Repel

\* Insect repellent brand names are provided for your information only. The Centers for Disease Control and Prevention and the U.S. Department of Health and Human Services cannot recommend or endorse any name brand products.

- Always follow the product label instructions.
- Reapply insect repellent every few hours, depending on which product and strength you choose.
- Do not spray repellent on the skin under clothing.
- If you are also using sunscreen, apply sunscreen first and insect repellent second.
- Treat clothing and gear (such as boots, pants, socks, and tents) with permethrin or purchase permethrin-treated clothing and gear.
- Treated clothing remains protective after multiple washings. See product information to find out how long the protection will last.
- If treating items yourself, follow the product instructions carefully.
- Do not use permethrin products, intended to treat clothing, directly on skin.
- Wear long-sleeved shirts and long pants.



Keep rain barrels covered tightly.



Weekly, empty standing water from fountains and bird baths.



Keep septic tanks sealed.



Install or repair windows & door screens.





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# *Mosquito Bite Prevention*

How do I protect myself from mosquito bites?

1. **Wear insect repellent:** Yes! It is safe. When used as directed, insect repellent is the BEST way to protect yourself from mosquito bites—even children and pregnant women should protect themselves. Higher percentages of active ingredient provide longer lasting protection.

- **DEET** 🐜: Products containing DEET include Cutter, OFF!, Skintastic.
- **Picaridin** (also known as KBR 3023, Bayrepel, and icaridin): Products containing picaridin include Cutter Advanced, Skin So Soft Bug Guard Plus, and Autan outside the United States).
- **Oil of lemon eucalyptus (OLE)** or **PMD**: Repel contains OLE.
- **IR3535**: Products containing IR3535 include Skin So Soft Bug Guard Plus Expedition and SkinSmart.

[Need more information?](#)

2. **Cover up:** When weather permits, wear long-sleeved shirts and pants.

3. **Keep mosquitoes outside:** Use air conditioning or make sure that you repair and use window/door screens.



When used as directed, insect repellents are the BEST way to protect yourself and family members from getting sick from mosquito bites.



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## Pregnant?

**Warning:** Zika might be linked to birth defects  
There is no vaccine to prevent Zika virus infection



## Protect yourself from mosquito bites



### Daytime is most dangerous

Mosquitoes that spread chikungunya, dengue, and Zika are aggressive daytime biters. They can also bite at night.



### Use insect repellent It works!

Look for the following active ingredients:  
• DEET • PICARIDIN • IR3535



### Wear protective clothes

Wear long-sleeved shirts and long pants and use insect repellent. For extra protection, treat clothing with permethrin.



### Mosquito-proof your home

Use screens on windows and doors. Use air conditioning when available. Keep mosquitoes from laying eggs in and near standing water.

### For more information:

[www.cdc.gov/chikungunya](http://www.cdc.gov/chikungunya) • [www.cdc.gov/dengue](http://www.cdc.gov/dengue) • [www.cdc.gov/zika](http://www.cdc.gov/zika)



**U.S. Department of  
Health and Human Services**  
Centers for Disease  
Control and Prevention



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## *For More Zika Information*

Harford County Health Department's Website:

<http://harfordcountyhealth.com/zika-virus/>

CDC's Website:

<http://www.cdc.gov/zika/>

Department of Health and Mental Hygiene's Website:

<http://phpa.dhmf.maryland.gov/pages/zika.aspx>

View our YouTube video on mosquito prevention:

<https://youtu.be/gX8rsb5OjvQ>

# County Health Rankings Framework



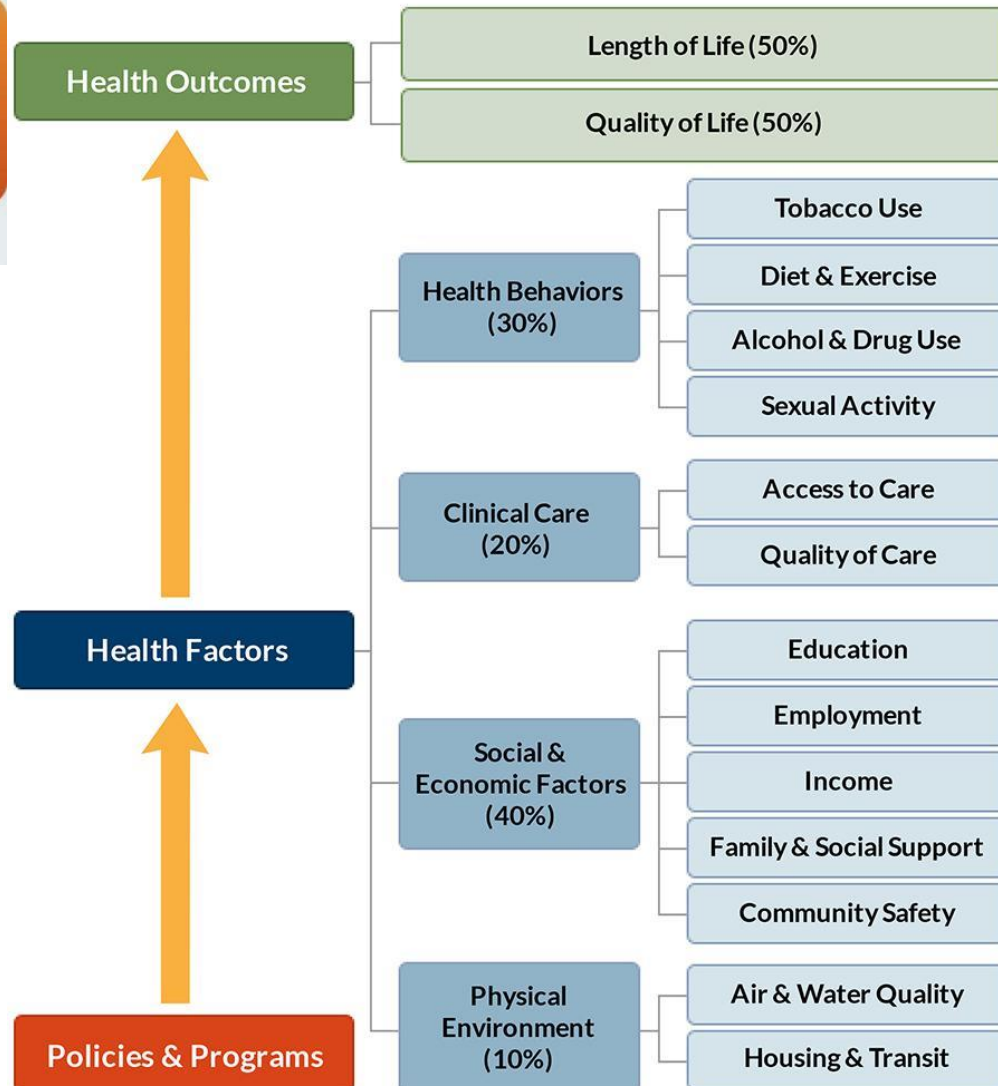
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## County Health Rankings & Roadmaps

Building a Culture of Health, County by County

A Robert Wood Johnson Foundation program



County Health Rankings model © 2014 UWPHI

Source: [www.countyhealthrankings.org](http://www.countyhealthrankings.org)

# ***YRBS-2014***

## ***Youth Risk Behavior Survey***

- Maryland's participation began in 2005
- Administered every two years 'til 2013
- In 2013, MD YRBS was combined with MD Youth Tobacco Survey, and administered in middle and high school classrooms.
- After 2013, changed to even-numbered years
- 2014 MD YRBS results are representative of all students in grades 6-8 and 9-12

# Harford County Health Rankings, 2011-2016

## (of 24 Maryland Jurisdictions)



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### County Health Rankings & Roadmaps

Building a Culture of Health, County by County

A Robert Wood Johnson Foundation program

YEAR	HEALTH OUTCOMES	HEALTH FACTORS
2016	5 <sup>th</sup>	9 <sup>th</sup>
2015	10 <sup>th</sup>	6 <sup>th</sup>
2014	10 <sup>th</sup>	6 <sup>th</sup>
2013	10 <sup>th</sup>	9 <sup>th</sup>
2012	9 <sup>th</sup>	8 <sup>th</sup>
2011	9 <sup>th</sup>	8 <sup>th</sup>





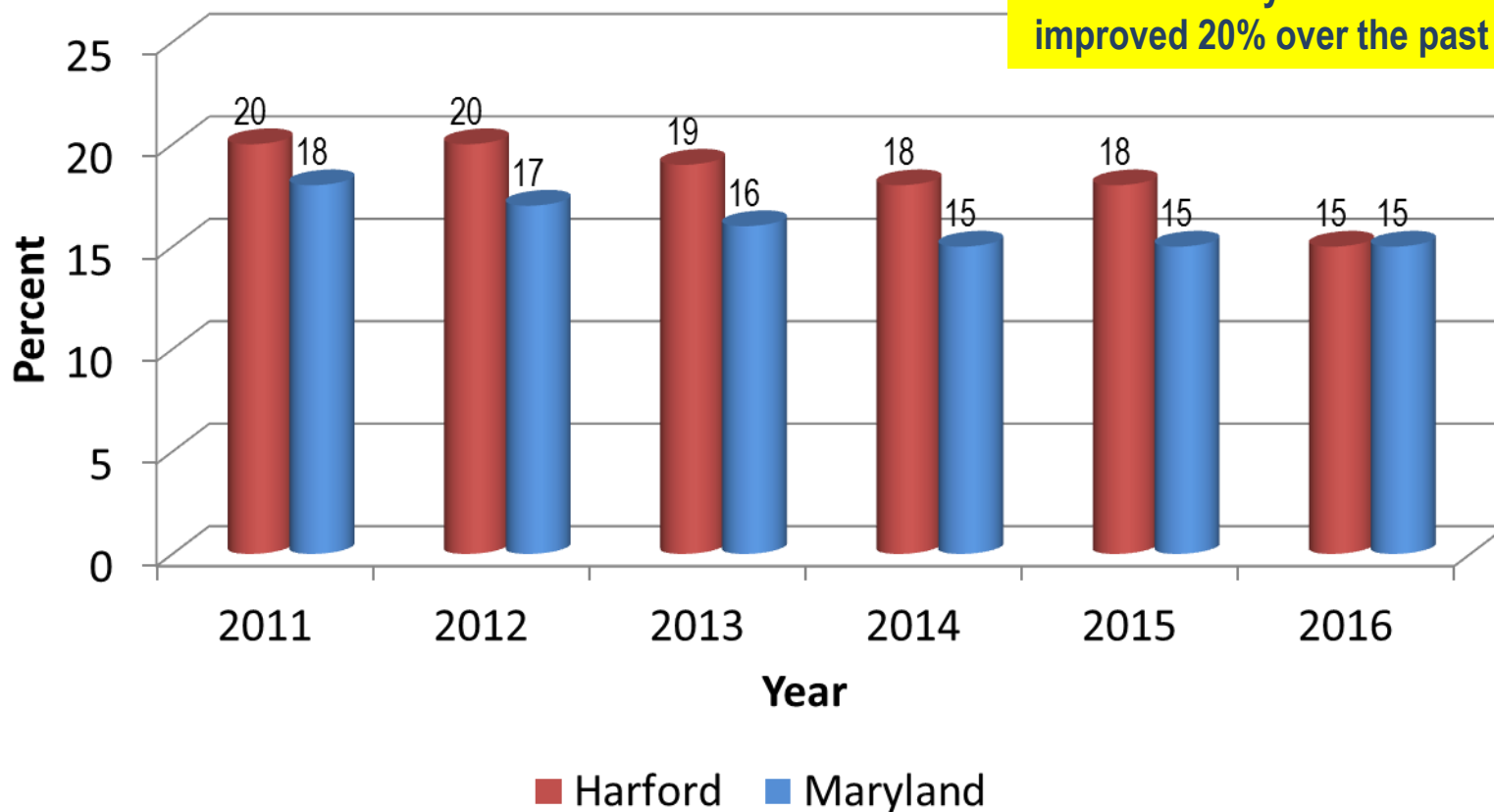
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# *Adult Smoking Rates*

## *Harford County & Maryland, 2011-2016*

**Harford County adult use rates have improved 20% over the past 6 years**



Source: [www.countyhealthrankings.org](http://www.countyhealthrankings.org)

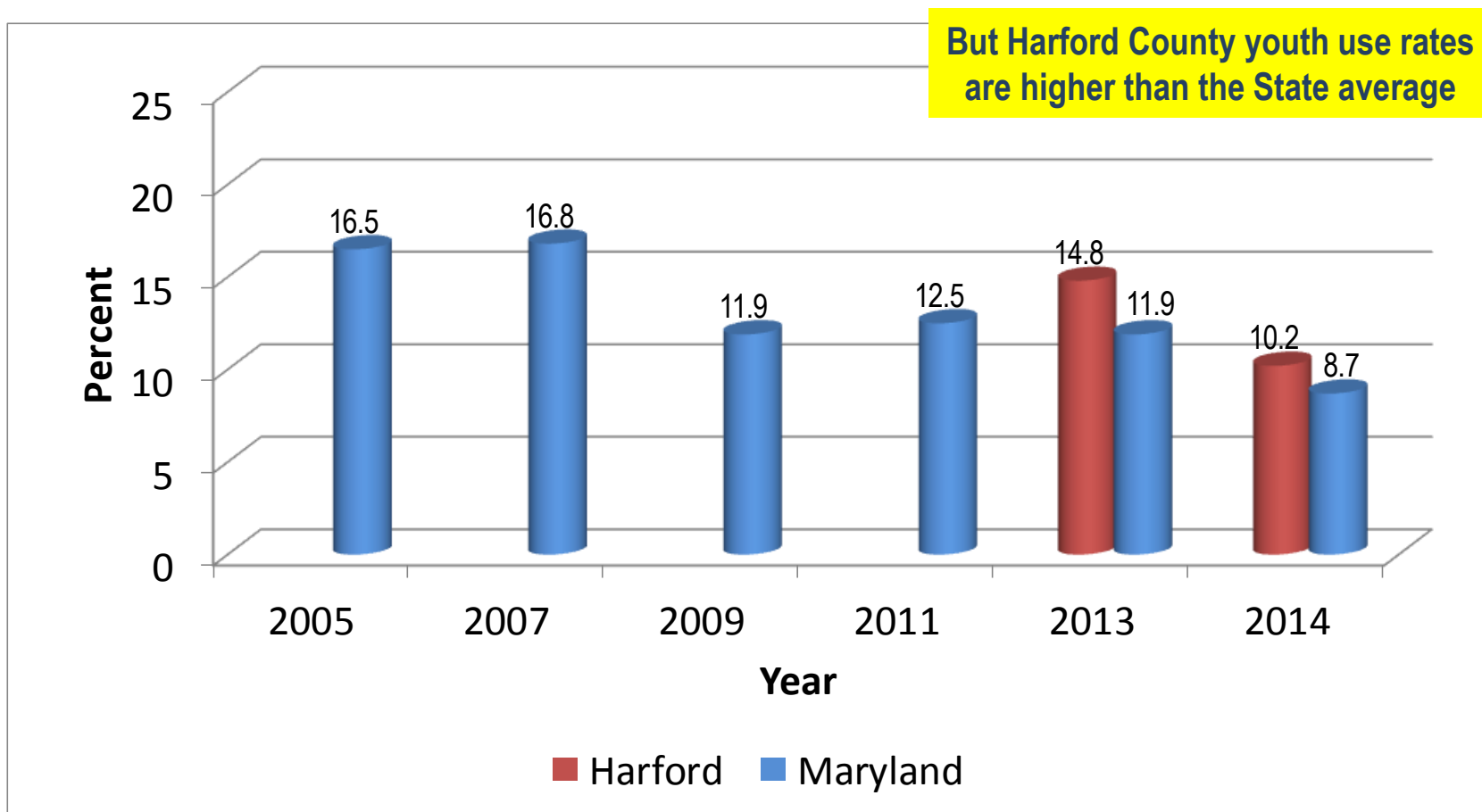


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# *Youth Cigarette Smoking Rates\**

## *Harford County & Maryland, 2005-2014*



\* Students Grades 9-12 who smoked in past 30 days  
Source: Maryland YRBSS, 2014

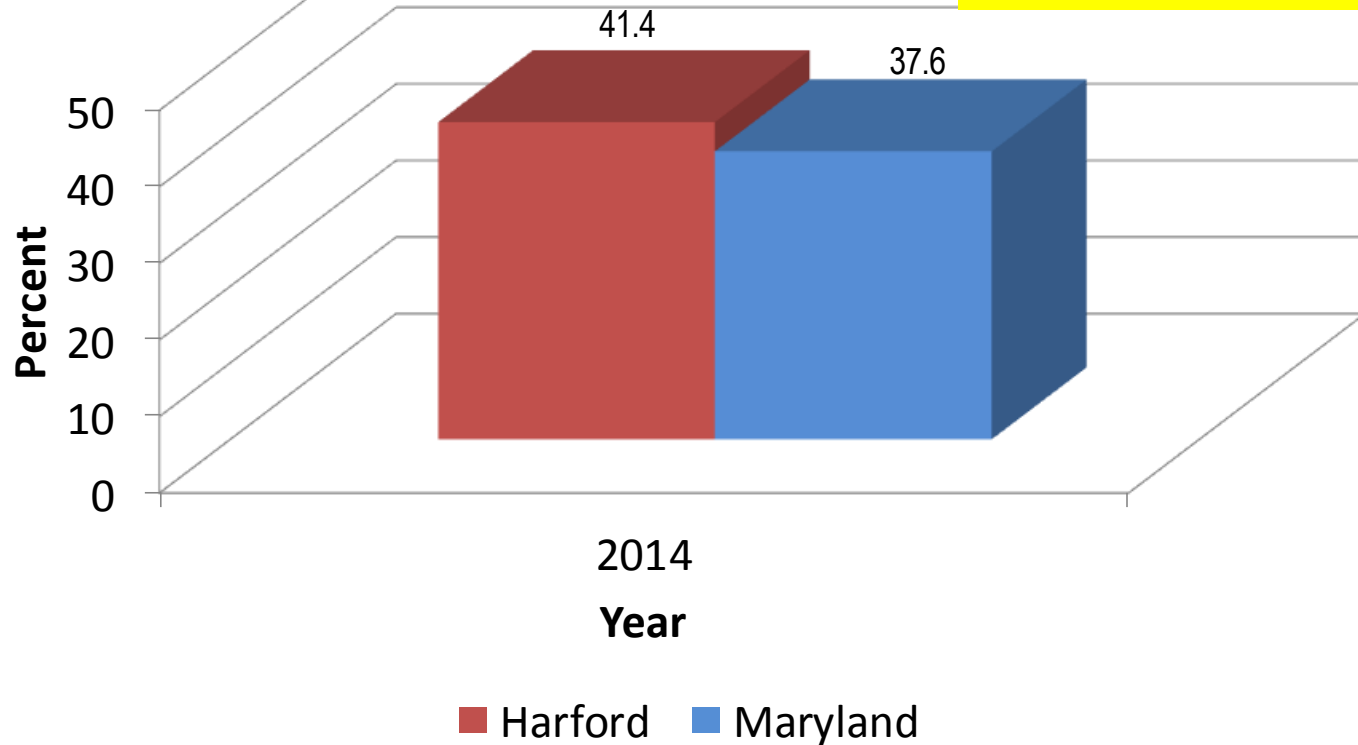


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# ***Youth E-Cigarette Smoking Rates\* Harford County & Maryland, 2014***

**Harford County youth are  
experimenting with e-cigarettes  
more than the State average**



\* Students Grades 9-12 who have ever used electronic vapor products (e.g., e-cigarettes, e-pipes, e-hookahs)

Source: Maryland YRBSS, 2014



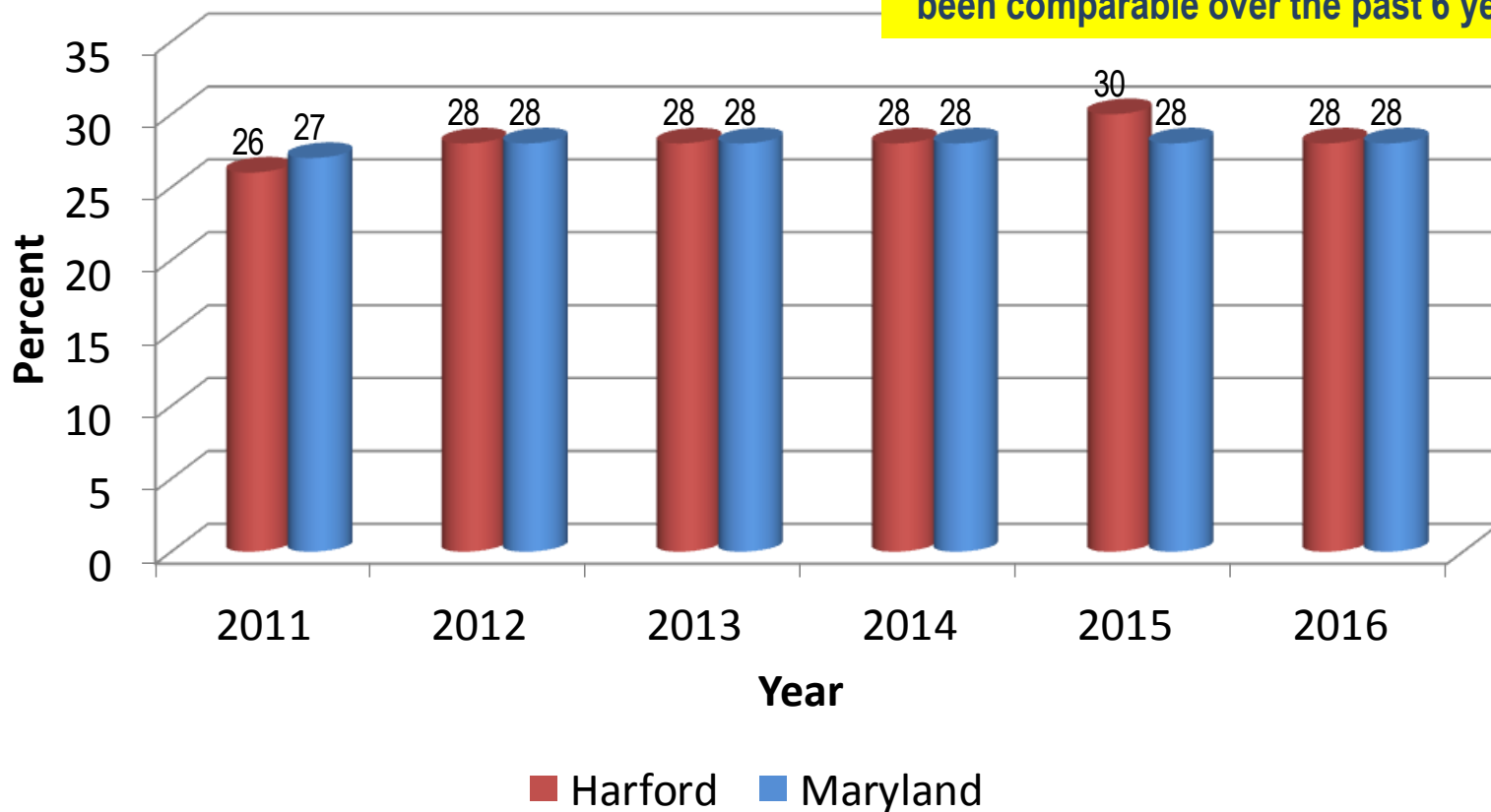
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# *Adult Obesity Rates*

## *Harford County & Maryland, 2011-2016*

Harford County & MD obesity rates have been comparable over the past 6 years



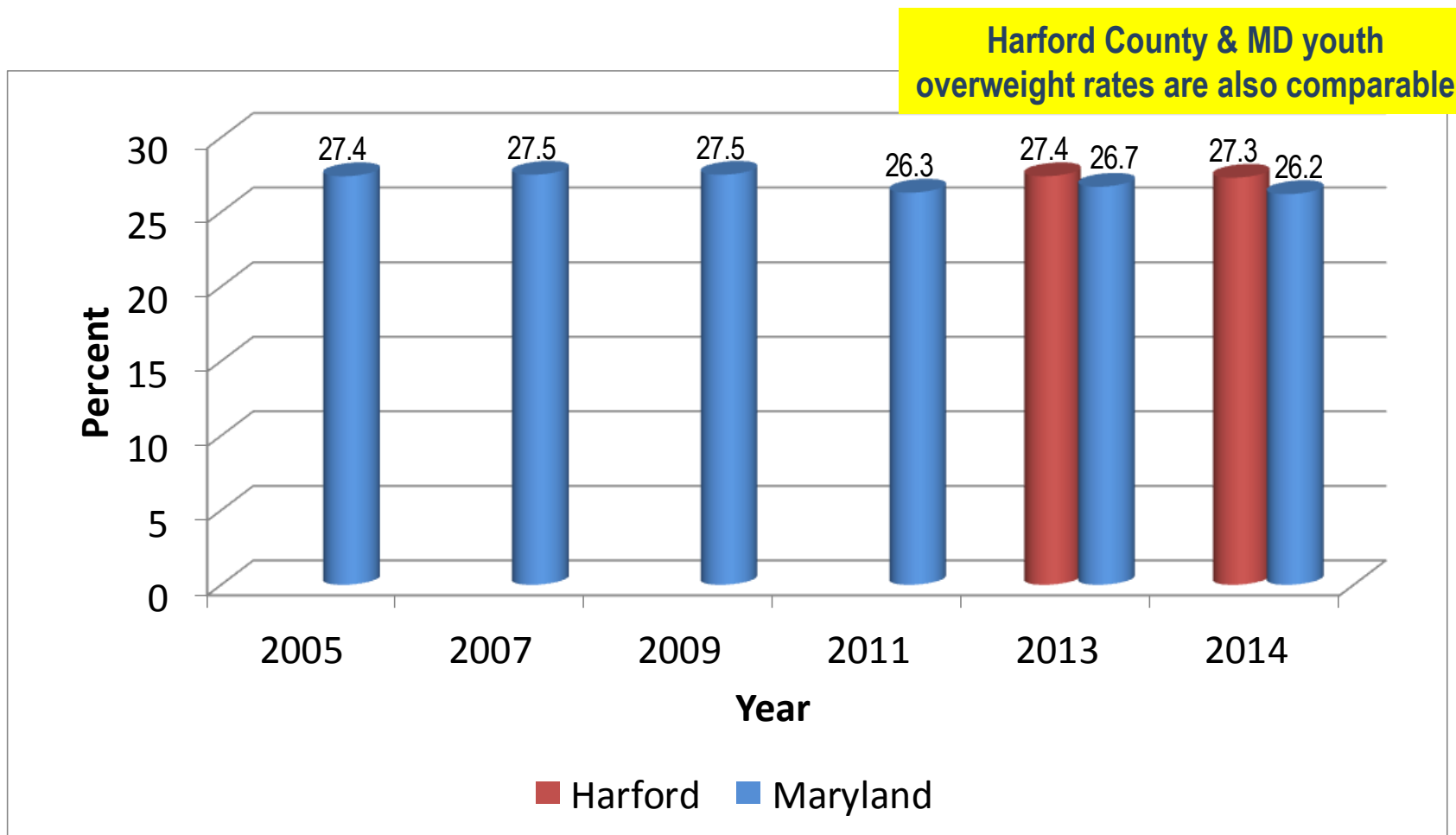


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# *Youth Overweight Rates\**

## *Harford County & Maryland, 2005-2014*



\* Students Grades 9-12 self-description of overweight  
Source: Maryland YRBSS, 2014



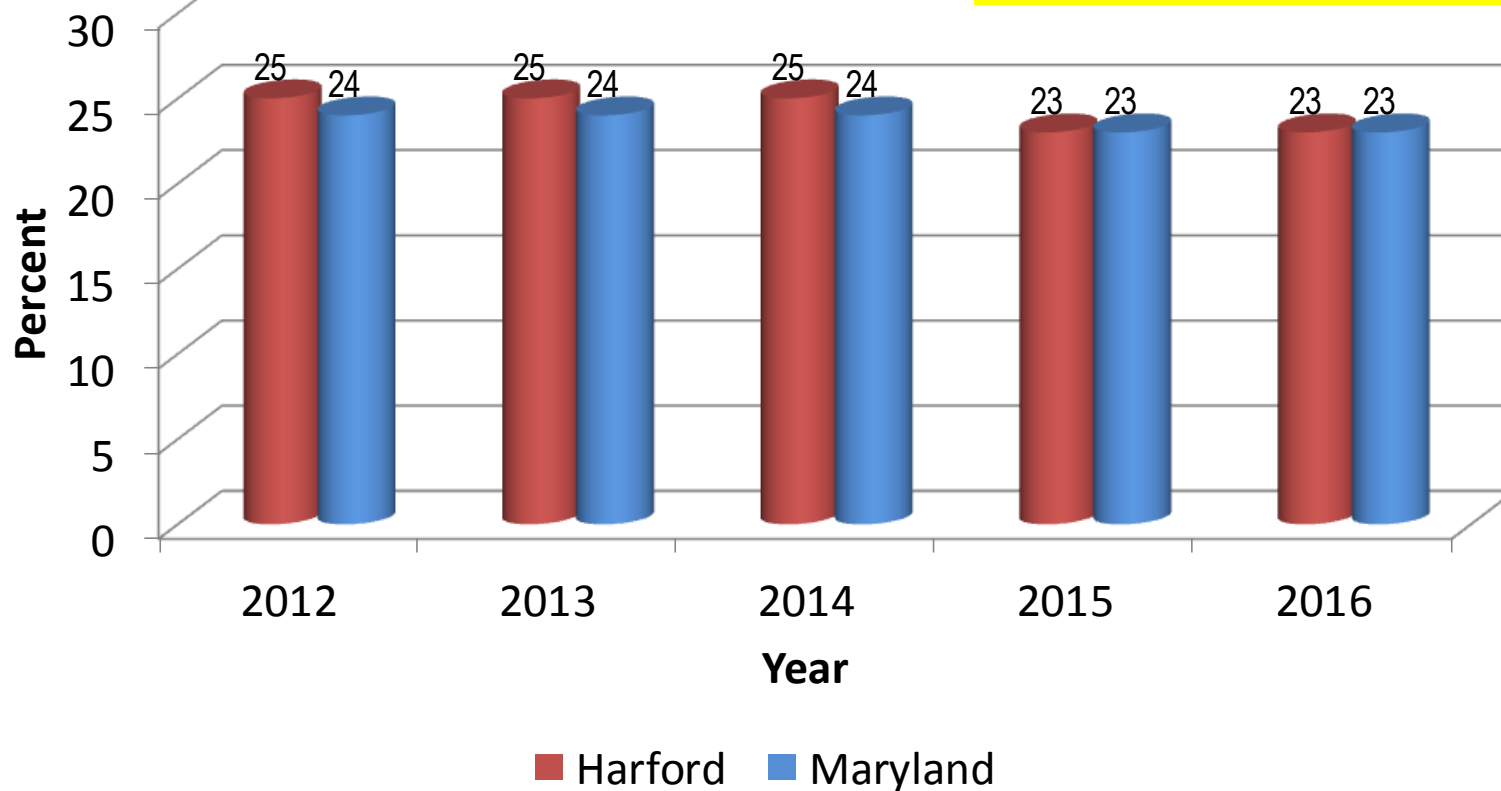
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# *Adult Physical Inactivity Rates*

## *Harford County & Maryland, 2012-2016*

Harford County rates have improved 8% over the past 5 years





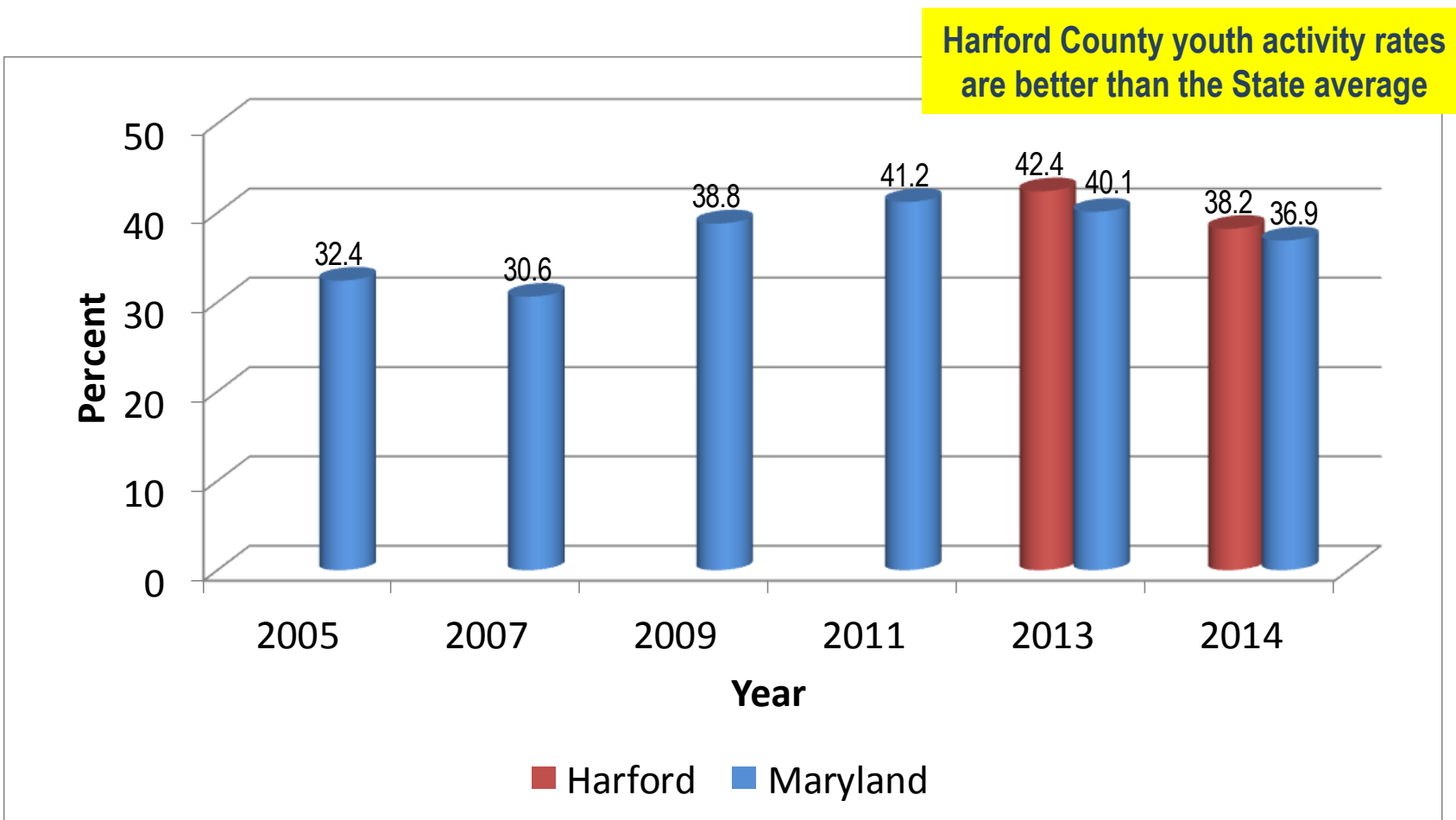


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# ***Youth Physical Activity Rates\****

## ***Harford County & Maryland, 2005-2014***



\* Students Grades 9-12 active for  $\geq 60$  min  $\geq 5$  days/wk  
Source: Maryland YRBSS, 2014

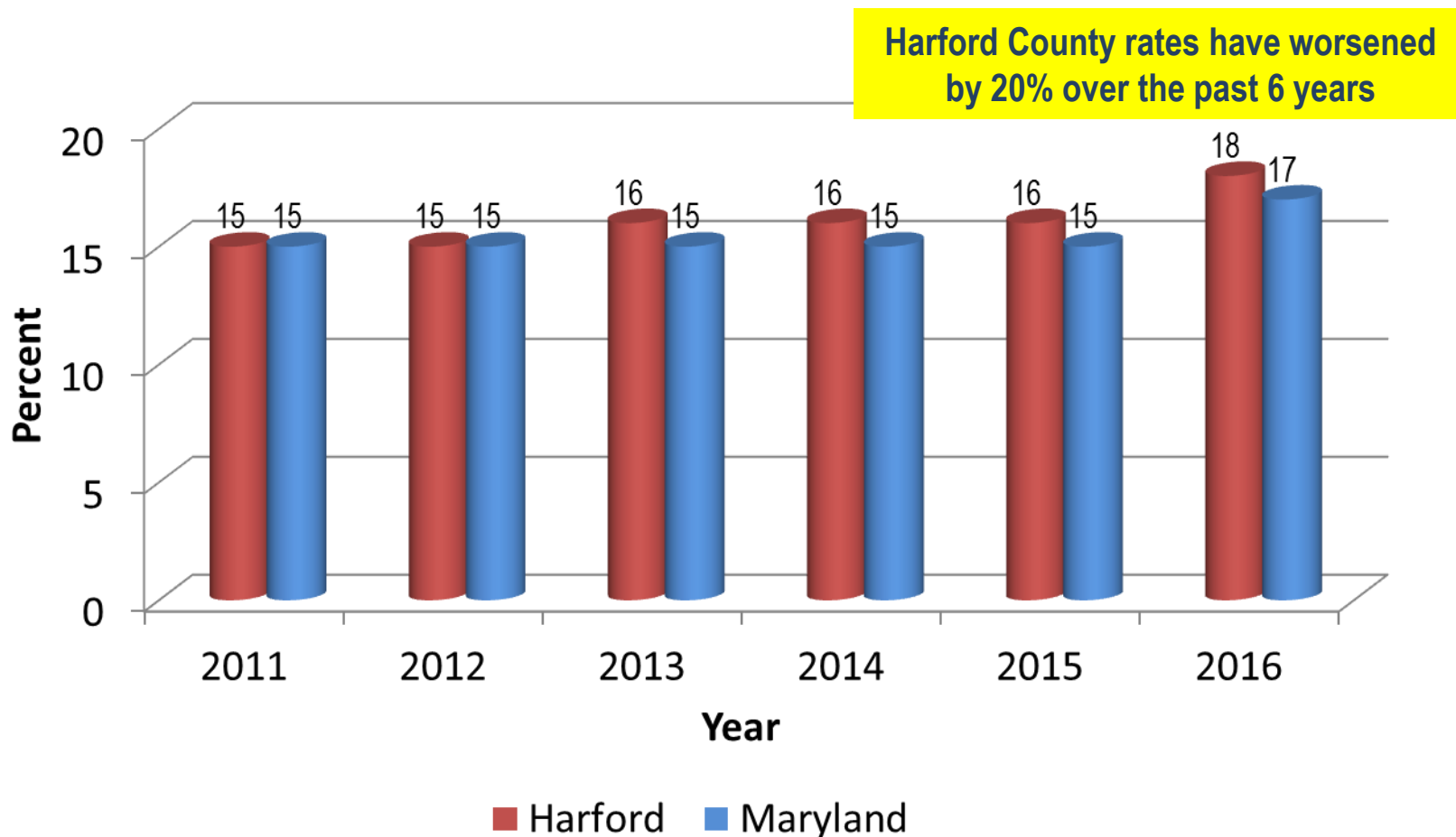


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# *Adult Binge Drinking Rates\**

## *Harford County & Maryland, 2011-2016*



\* Consumed  $\geq 5$  drinks (male) or 4 drinks (female) on a single occasion in past 30 days  
Source: [www.countyhealthrankings.org](http://www.countyhealthrankings.org)



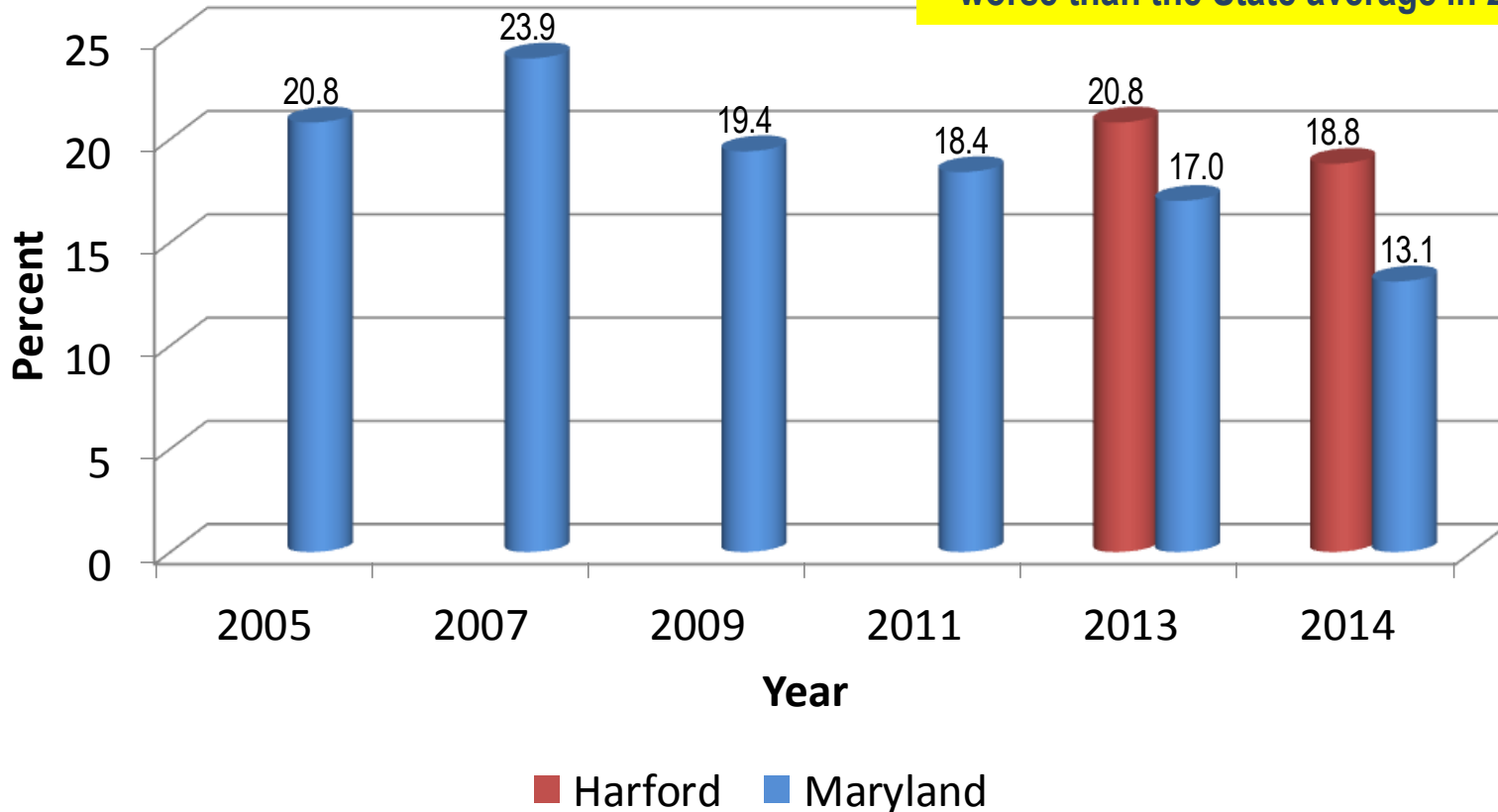
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# ***Youth Binge Drinking Rates\****

## ***Harford County & Maryland, 2011-2016***

**Harford County youth rates were 30% worse than the State average in 2014**



\* Students Grades 9-12 consumed  $\geq 5$  drinks on a single occasion in past 30 days  
Source: Maryland YRBS, 2014



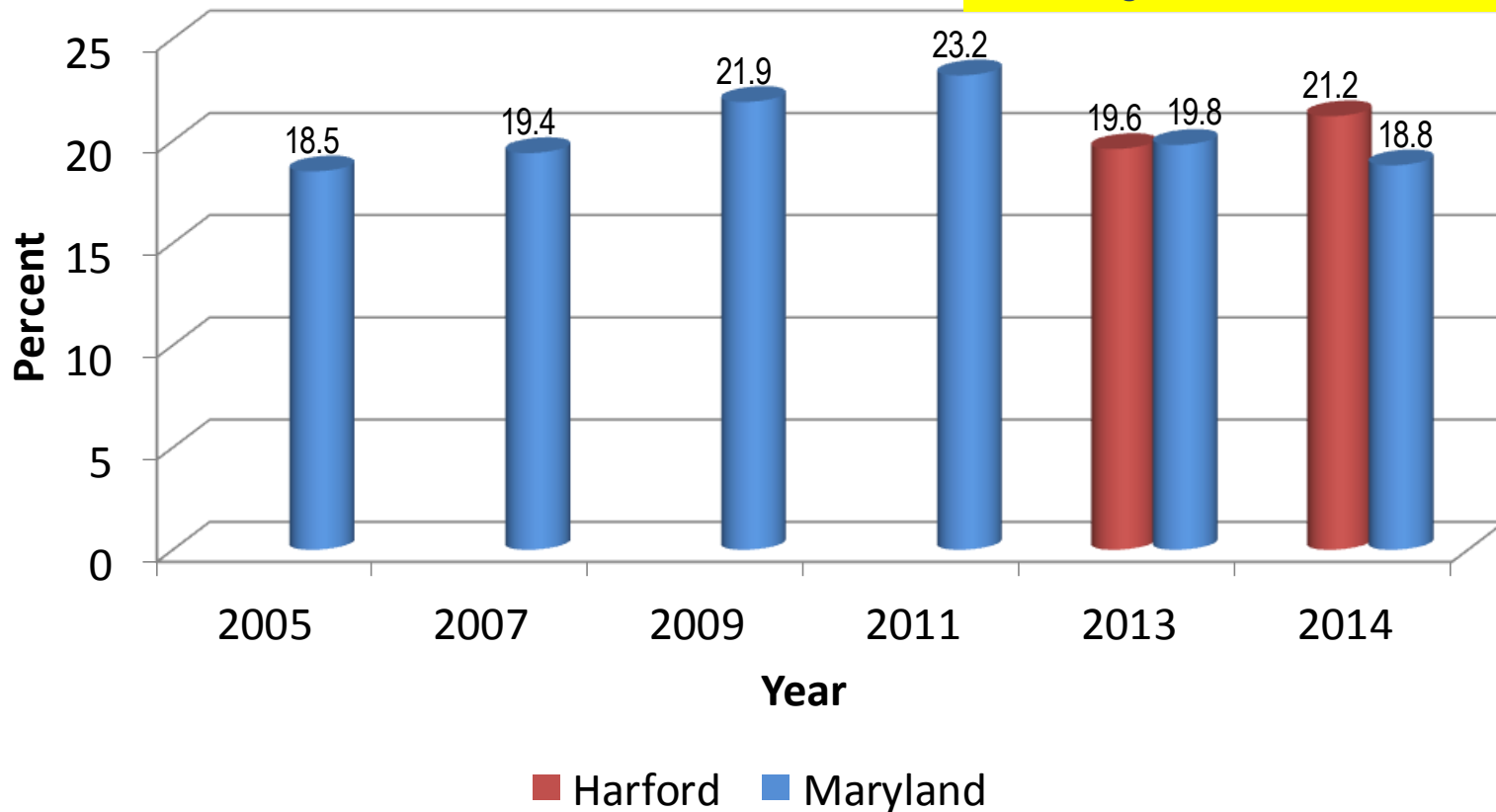
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# *Youth Marijuana Use Rates\**

## *Harford County & Maryland, 2005-2014*

**Harford County marijuana youth use rates higher than the State average**



\* Students Grades 9-12 who used marijuana  $\geq 1$  time during past 30 days  
Source: Maryland YRBSS, 2014

# Youth Illegal Injection Drug Use Rates\*

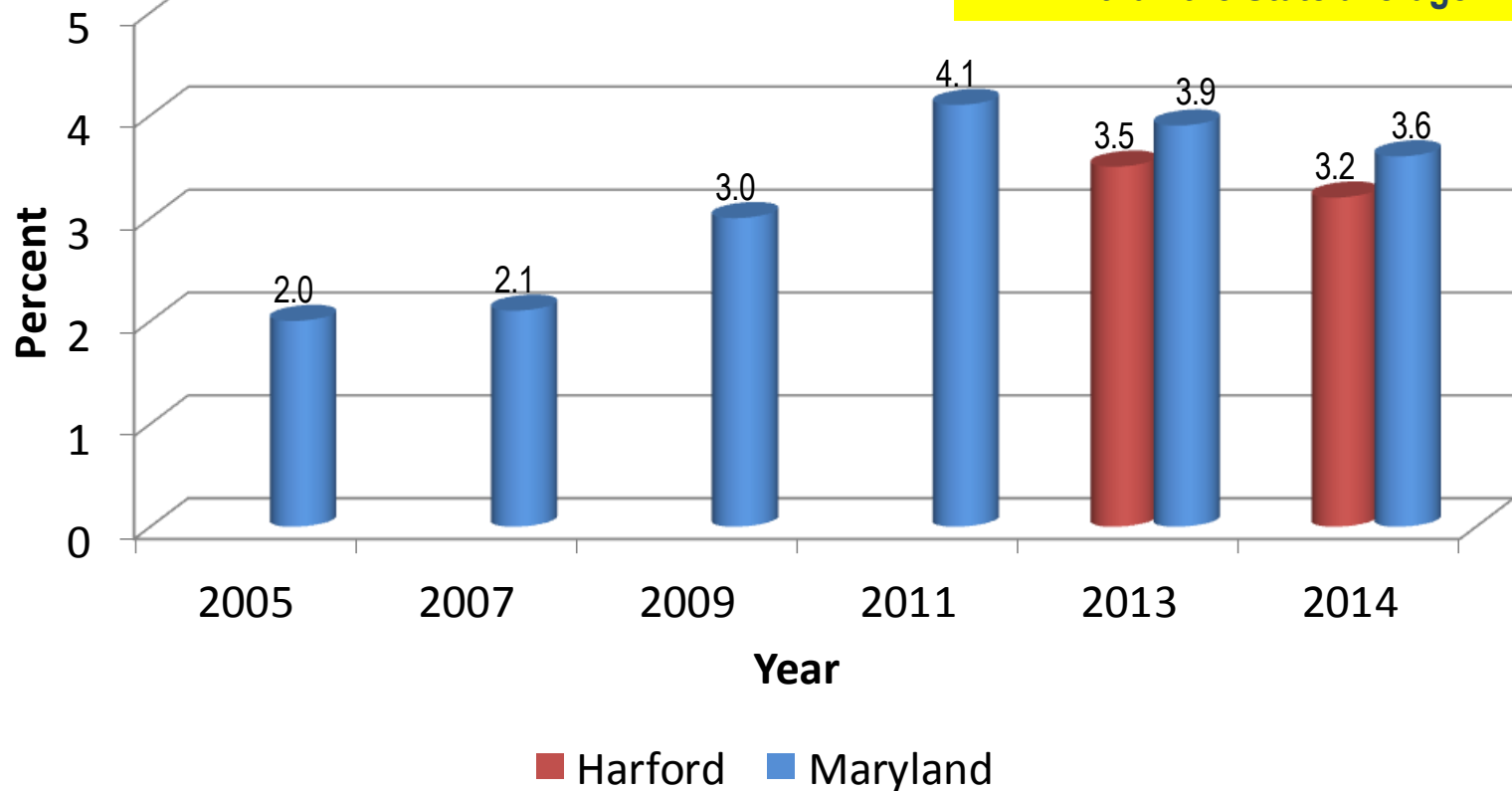
## Harford County & Maryland, 2005-2014



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Harford County illegal injection drug rates among youth currently lower than the State average



\* Students Grades 9-12 who ever used a needle to inject any illegal drug into their body  
Source: Maryland YRBSS, 2014

# Drug/Alcohol-Related Intoxication Deaths Harford County & Maryland, 2007-2014



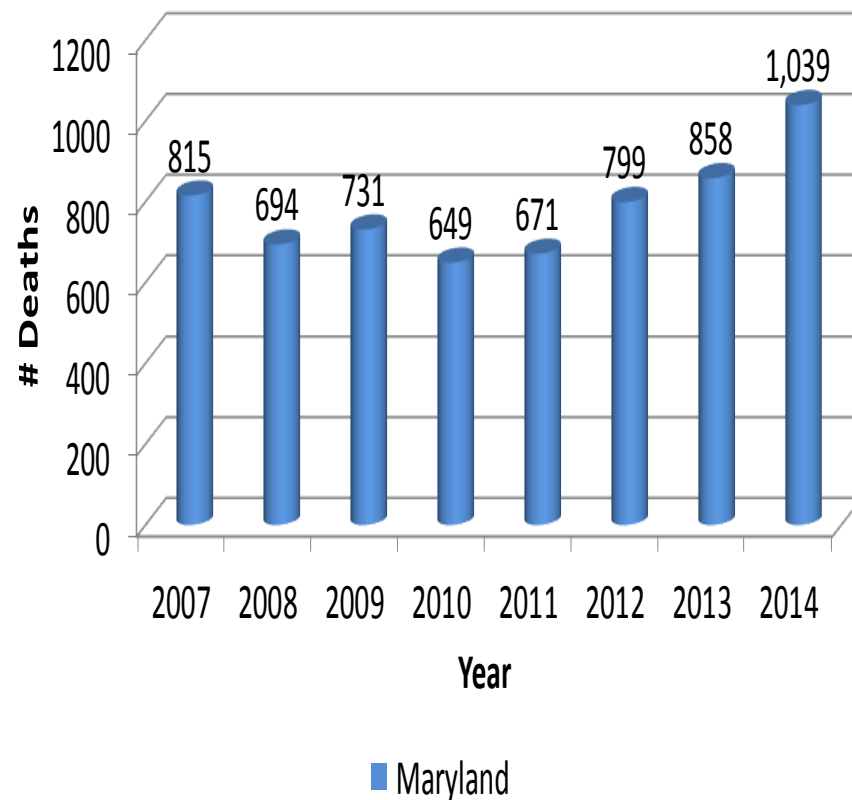
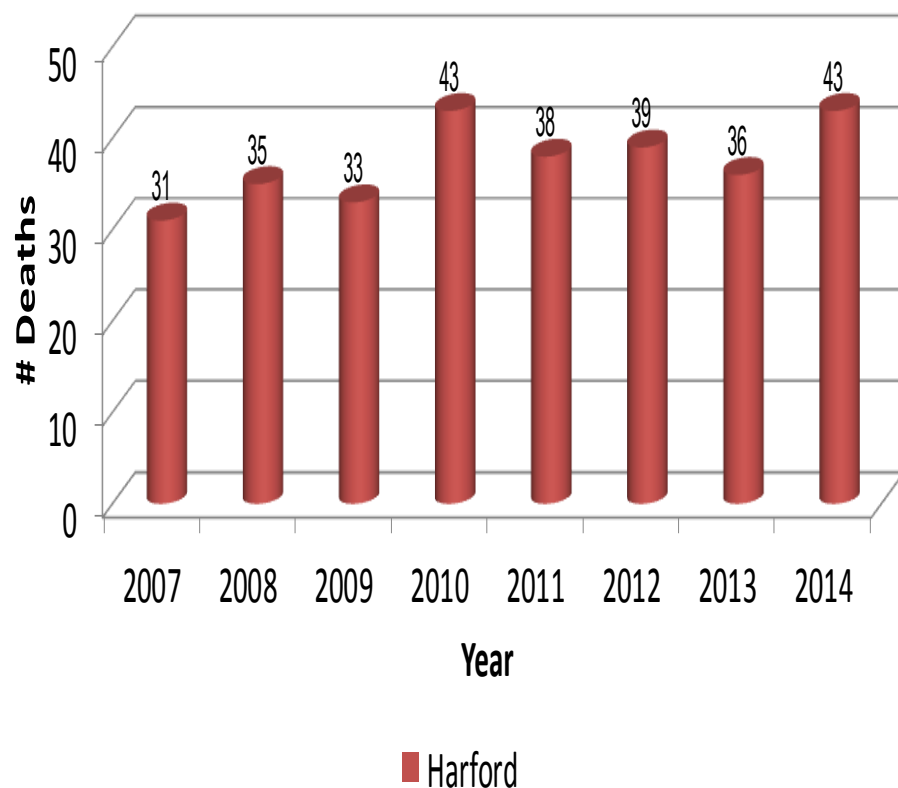
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**39% Harford County increase in deaths  
27% Maryland increase over past 7 years**

**Maryland**





# Adults Reporting Poor Mental Health Days\*

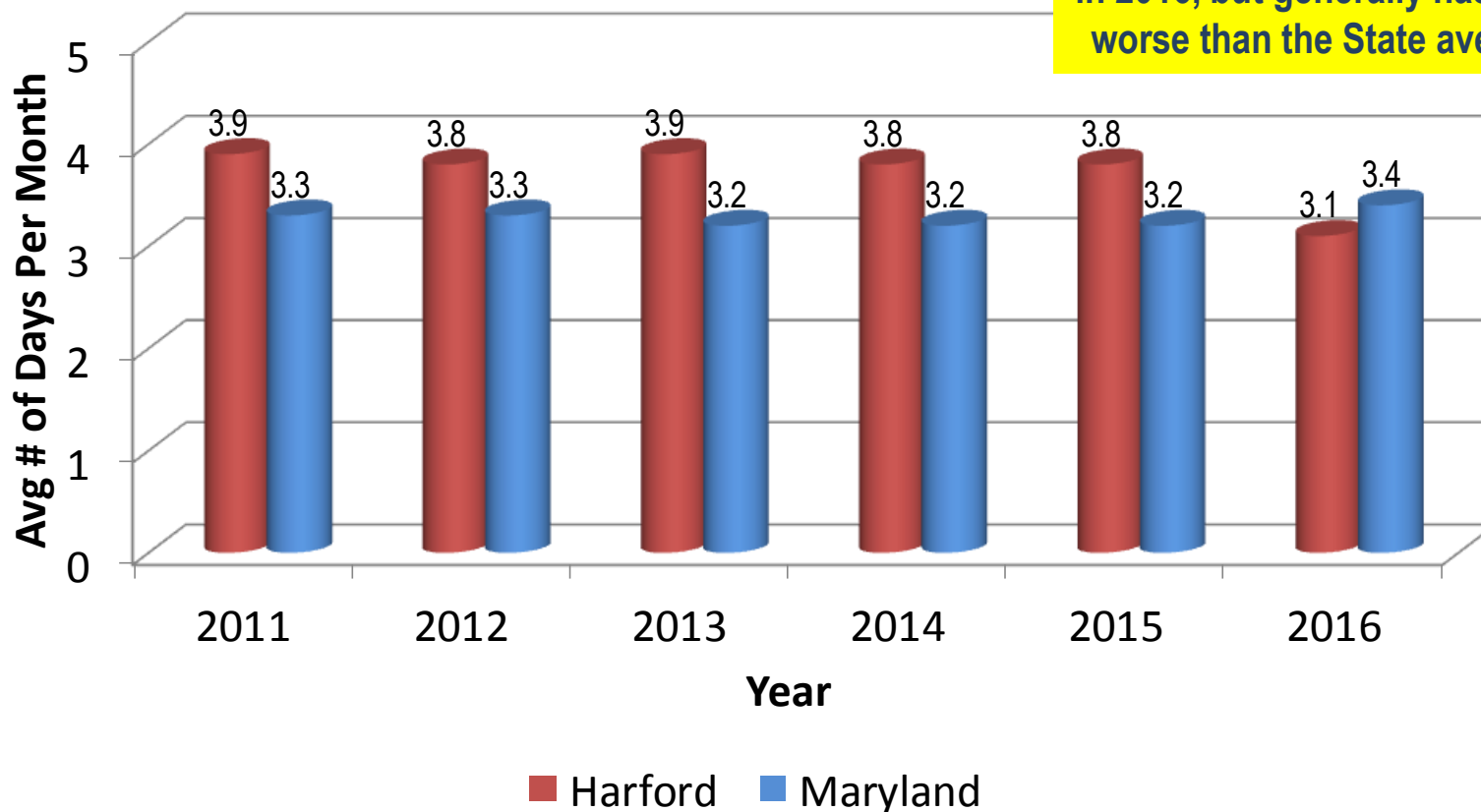
## Harford County & Maryland, 2011-2016



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Harford County rate improved in 2016, but generally has been worse than the State average



\* Avg # of mentally unhealthy days reported in past 30 days  
Source: [www.countyhealthrankings.org](http://www.countyhealthrankings.org)



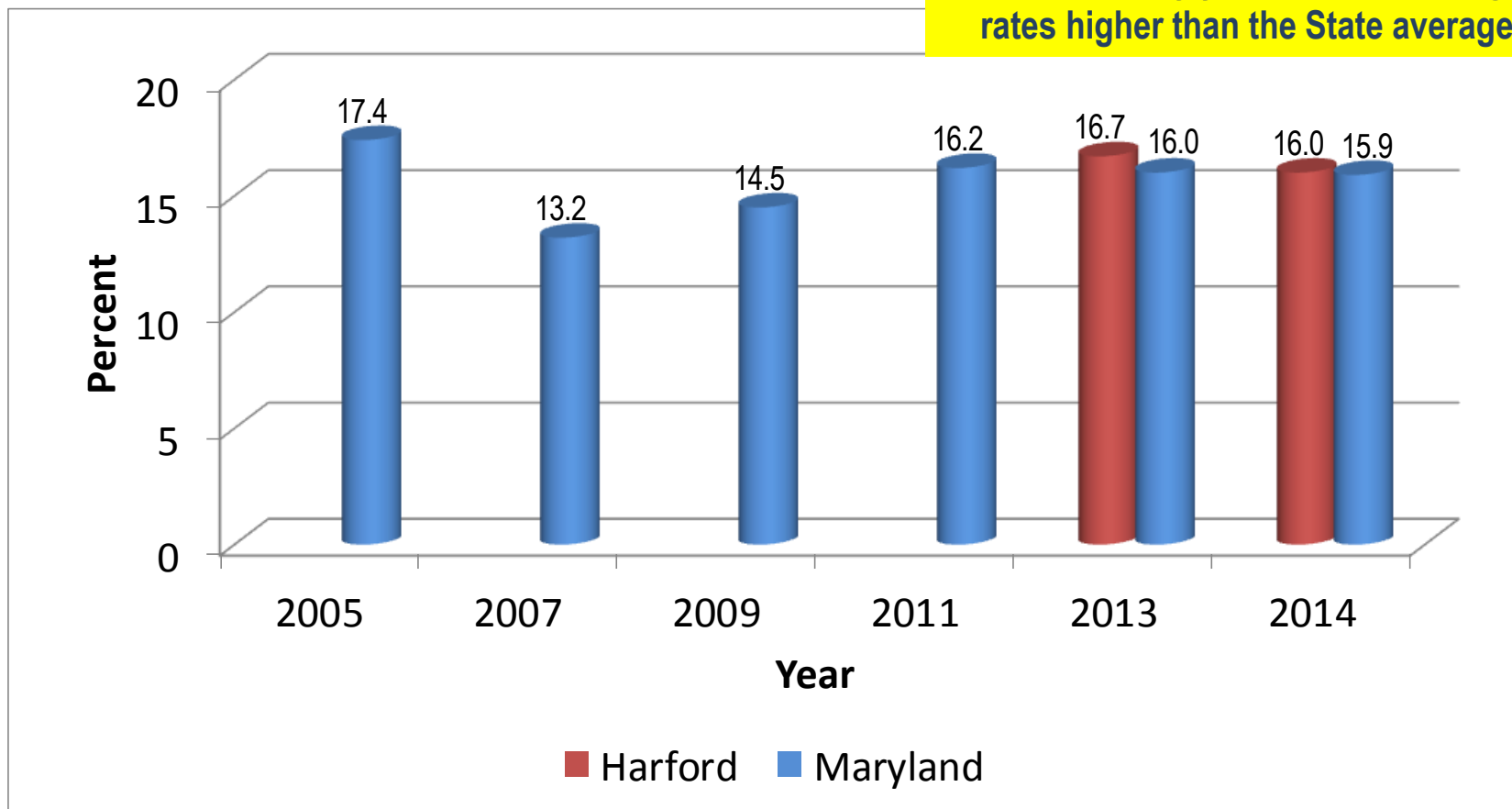
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# *Youth Suicide Thought Rates\**

## *Harford County & Maryland, 2005-2014*

**Harford County youth suicide thought rates higher than the State average**



\* Students Grades 9-12 who seriously considered attempting suicide during past year  
Source: Maryland YRBSS, 2014

# *Suicide Mortality Rates*

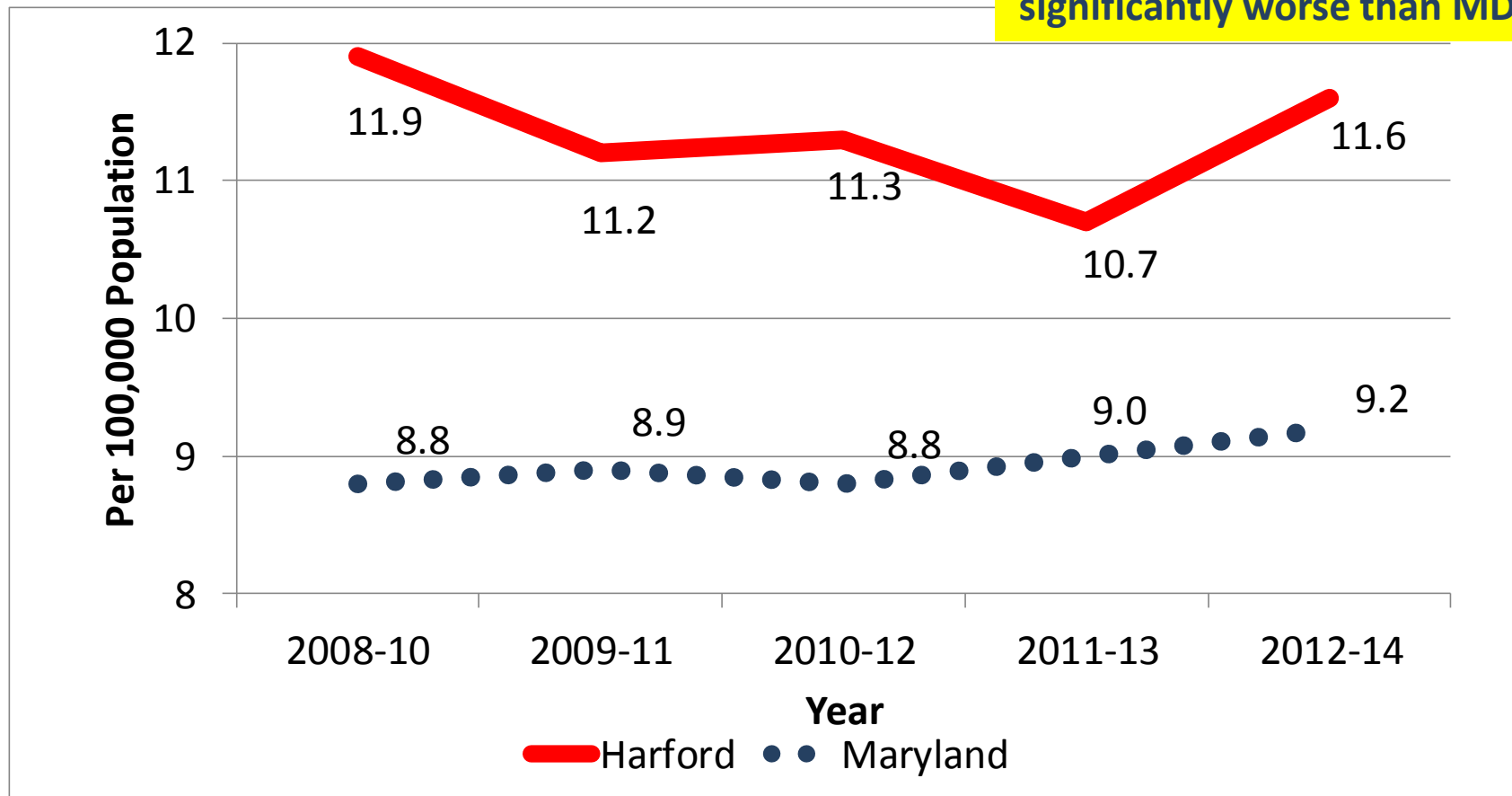
## *Harford County & Maryland, 2010-2014*



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**Harford County rates  
significantly worse than MD**



\* Age-Adjusted Rates

Source: Maryland Vital Statistics Reports

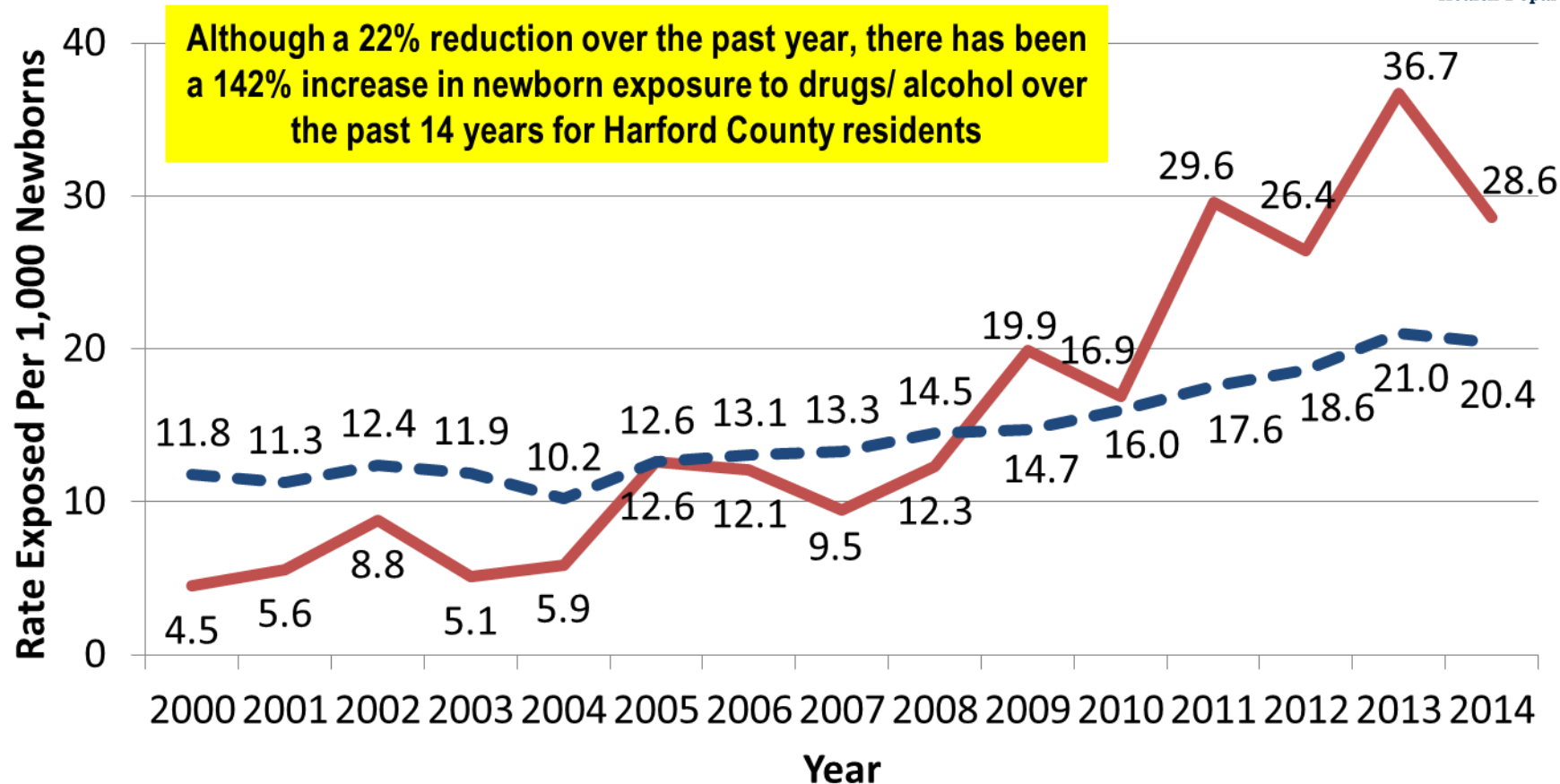
# Newborns Exposed to Maternal Drugs/Alcohol

## Harford County & Maryland 2000-2014



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NOTE: ICD Codes used 760.70, 760.71.

760.72, 760.73, 760.75, 760.77, 779.5


— Harford County — Maryland

\* 2013 DATA IS PRELIMINARY – Data compiled by DHMH. Chart prepared by HCHD.


Source: HSCRC Hospital Data, 2000-14, Maryland resident births only.

# Harford County Health Department Website Data

[www.harfordcountyhealth.com](http://www.harfordcountyhealth.com)




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ACCREDITATION



The Harford County Health Department is proudly an accredited health department. Click to learn what that means for our community.




Get all the information you need to know about the Zika virus by clicking here.

TRANSLATOR


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Public Health Video



QUICK LINKS

- A - Z Listing
- Birth Certificates
- Death Certificates
- Harford County Local Health Improvement Process
- Health Care and You
- Health Care Reform in Maryland
- How Do I
- Maryland.gov - Problem Solver
- SHIP
- SHIP Healthy Tips
- Vital Statistics

THIS IS A SECURE SITE

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**Food Safety Recalls & Tips**

Recalls Tips

**Watts Brothers Farms**  
Oregon...  
May 5, 2016

**Pita Pal Foods, LP**  
Recalls Corn...  
May 5, 2016


**Hickory Harvest**  
Recalls Certain...  
May 5, 2016

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See what's happening with our Faith Communities Health Program.

PUBLIC HEALTH MATTERS

Harford Cable Network will air a new episode of Public Health Matters...



**Youth Risk Behavior Survey**

April 22, 2016 by Mmraz

The Youth Risk Behavior Survey is now available. The Maryland YRBS is part of the U.S. Centers for Disease Control and Prevention (CDC) Youth Risk Behavior Surveillance System (YRBSS) developed in 1990 to monitor behaviors affecting morbidity (disease) and mortality (death) among high school youth. The YRBSS tracks several priority health risk behaviors among youth as [...]

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**Naloxone Training Program**

April 22, 2016 by Mmraz

Naloxone (NARCAN®, EVZIO®) is a prescription medication that safely and effectively reverses an opioid overdose. Opioid is a class of drugs that includes heroin and prescription pain relievers like oxycodone (OxyContin®, Percocet®), hydrocodone (Vicodin®, Lortab®), oxycodone (Opana®), hydromorphone (Dilaudid®), morphine (MS Contin®), fentanyl (Duragesic®) and methadone. Naloxone does NOT: [...]

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**2016 County Health Rankings**

April 22, 2016 by Gail

The Robert Wood Johnson Foundation (RWJF) has released its 2016 national County Health Rankings that reflect health status in Harford remains stable and continues to be among the best in the state. The County Health Rankings & Roadmaps is compiled annually by the Robert Wood Johnson Foundation and the University of Wisconsin Population Health Institute. [...]

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# *Other Health Priorities in Harford County*



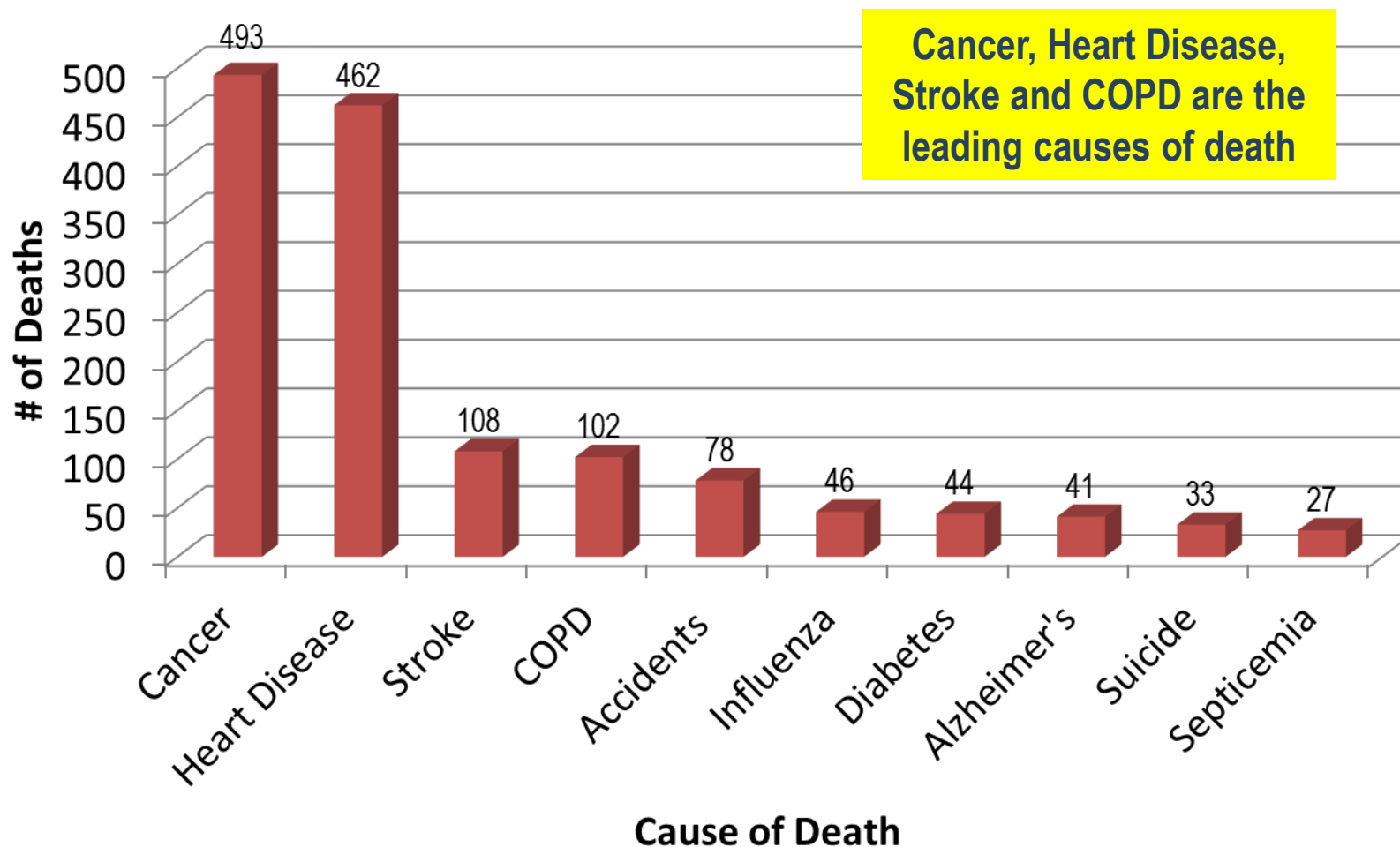
# Ten Leading Causes of Death

## Harford County, 2014



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Source: Maryland Vital Statistics

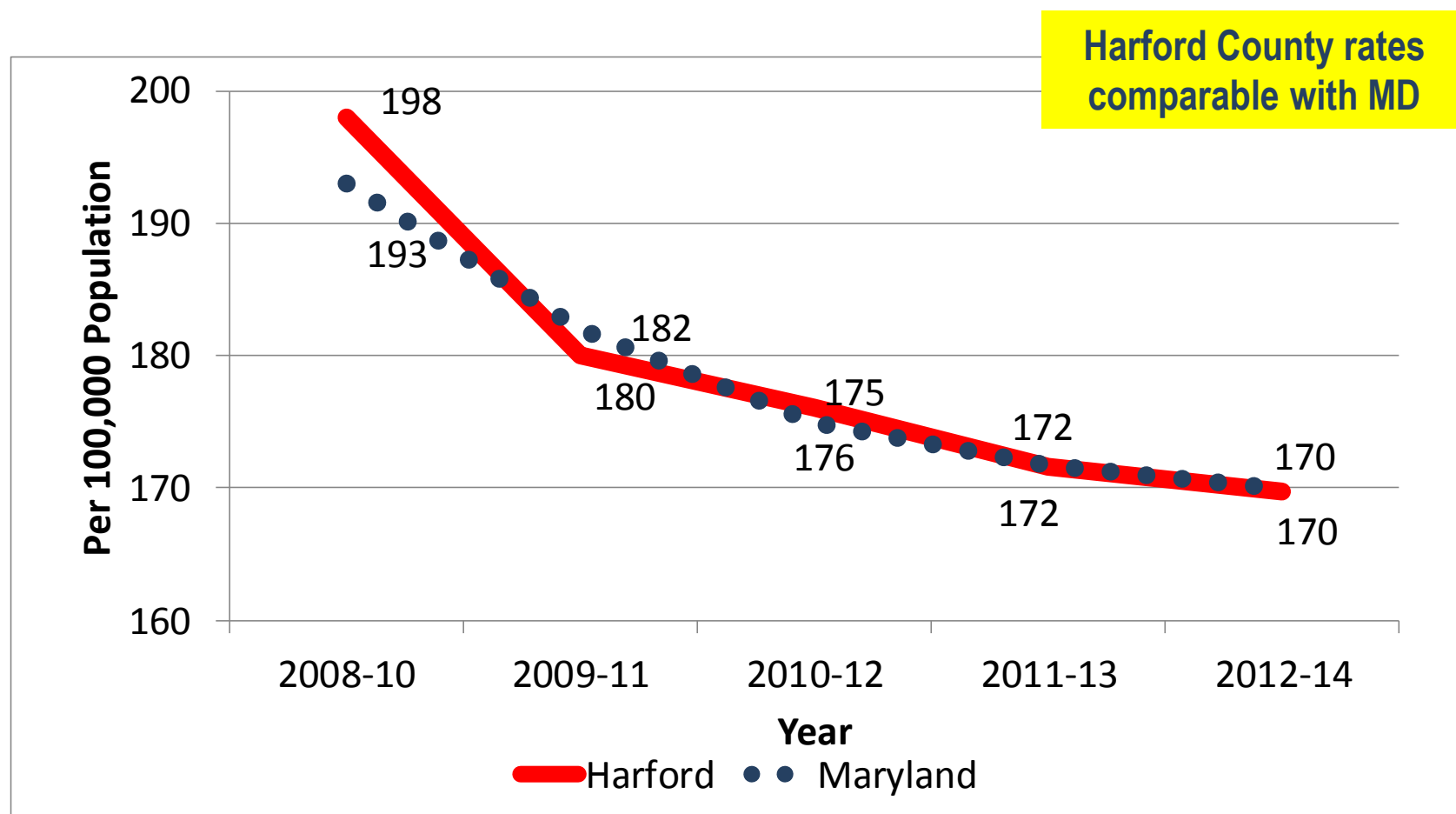


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# *Heart Disease Mortality Rates*

## *Harford County & Maryland, 2010-2014*



\* Age-Adjusted Rates  
Source: Maryland Vital Statistics

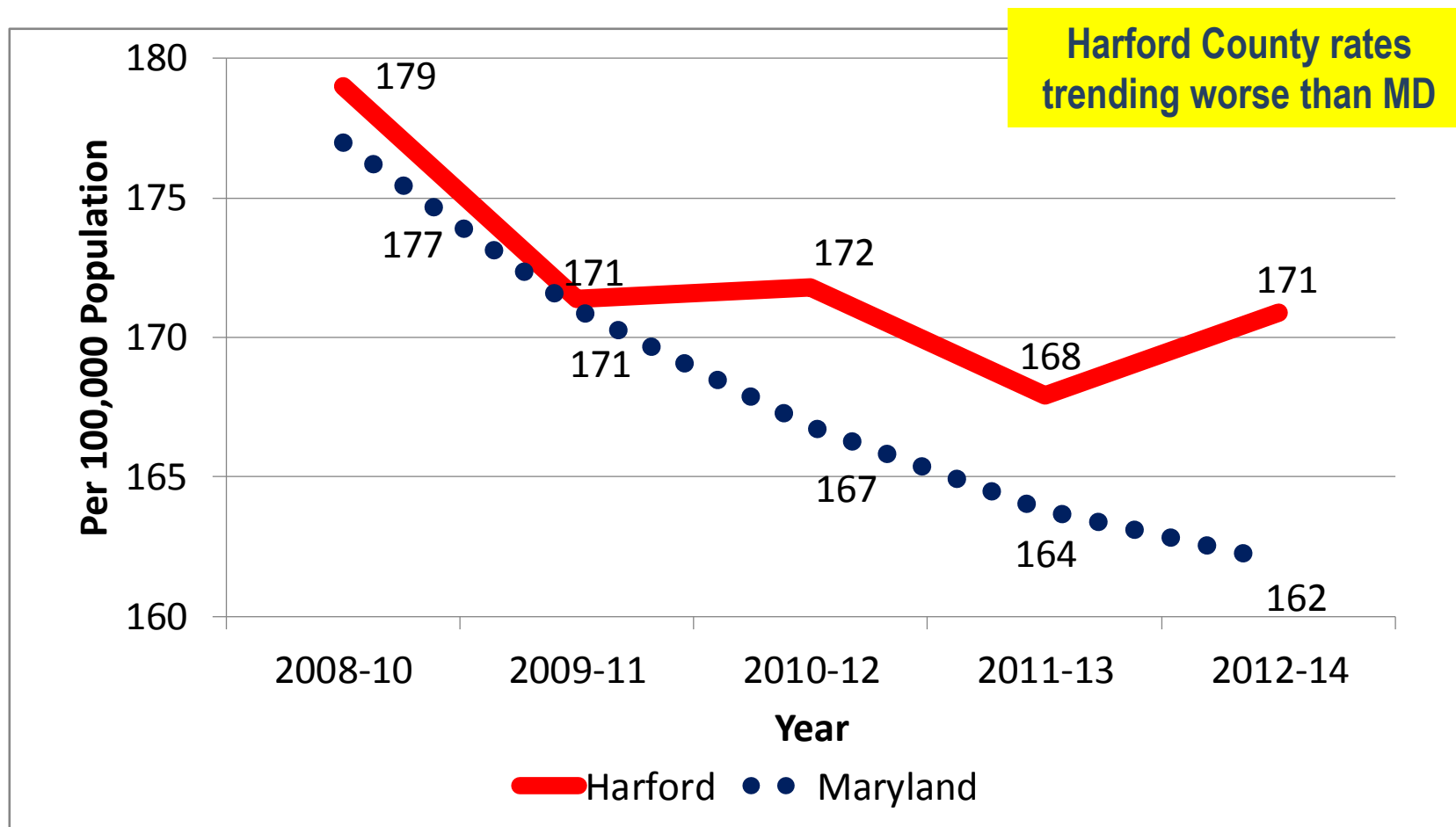


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# *Cancer Mortality Rates*

## *Harford County & Maryland, 2010-2014*



\* Age-Adjusted Rates  
Source: Maryland Vital Statistics

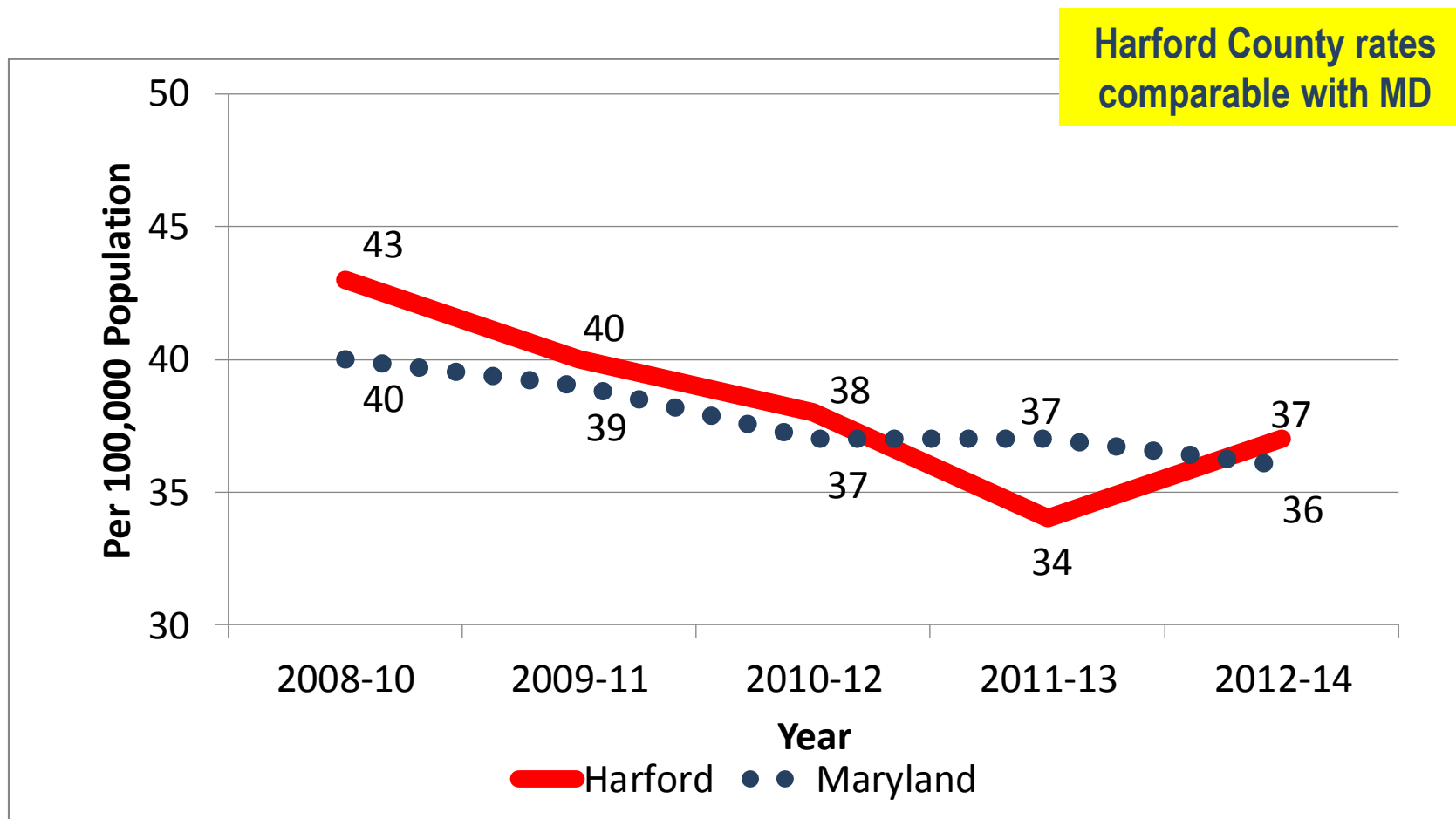
# Stroke Mortality Rates

## Harford County & Maryland, 2010-2014



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\* Age-Adjusted Rates  
Source: Maryland Vital Statistics

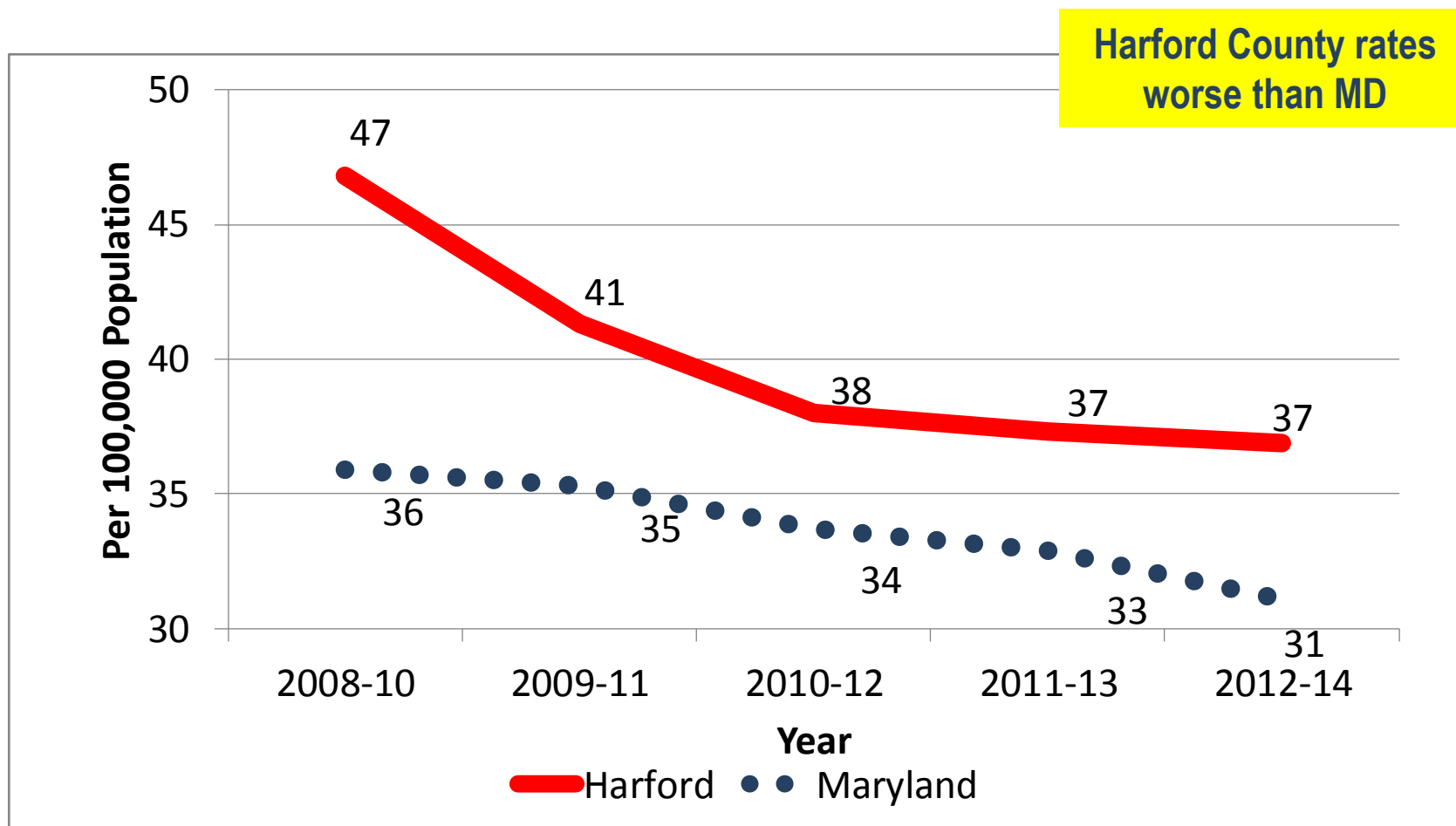


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# ***COPD Mortality Rates***

## ***Harford County & Maryland, 2010-2014***



\* Age-Adjusted Rates  
Source: Maryland Vital Statistics

# *Vivitrol*



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- A once-monthly, non-addictive treatment for opioid or alcohol dependence.
- It blocks the effects of alcohol and opiates and can help with cravings
- It must be used with other recovery programs such as counseling
- Must be opioid-free for 7-14 days prior to vivitrol.





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# ***Vivitrol in the Detention Center***

- Detention Center staff provides a list of opiate and alcohol dependent inmates to HD counselor who then interviews the inmate for appropriateness and interest.
- If inmate is interested, an assessment is done, medical records checked, blood work completed. If all checks out, then the injection given to inmate  $\leq 5$  days prior to release from Detention Center.



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# ***Follow-Up at the Health Department***

- The inmate is instructed to report to the HD immediately upon being released or the very next business day. Person is assessed at HD and the appropriate level of care of treatment is started.
- Clients must participate in treatment in order to continue the Vivitrol injection.

# ***How Long to Stay on Vivitrol?***

- It is recommended that 6-months should give a person enough time to get stable and get involved in a recovering lifestyle. However, if a person feels they are not ready to stop using the medication, then they can continuing using it.



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# ***Cost of Vivitrol***

- Vivitrol costs approximately \$1,100 per injection; however, insurance pays for Vivitrol. The co-pay is approximately \$11.00
- The HD purchases very little Vivitrol given that insurance does cover the cost. However, the HD can get a reduced cost.
- The manufacturer provides the HD with the first injection for those inmates in the DC since they are uninsured.



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# ***May is Lyme Disease Awareness Month.***

## ***Reducing exposure is the best defense***

- Avoid areas with lots of ticks.
- Keep ticks off of your skin. Use insect repellent.
- Wear appropriate clothing.
- Perform a tick check on clothing and skin daily.
- Remove ticks promptly.
- Seek medical attention, when indicated.
- [www.harfordcountyhealth.com](http://www.harfordcountyhealth.com) *A-Z Quick Links*

# *May is Skin Cancer Awareness Month*

- Limit amount of time in the direct sun; sun's rays are strongest between 10 a.m. and 4 p.m.
- Use sunscreen with broad spectrum protection and preferably SPF 30 or higher. Apply according to directions, and use sunscreen even on cool or cloudy days.
- Wear protective clothing, sunglasses and a hat
- Check your skin every month for changes

*<http://harfordcountyhealth.com/skin-cancer-awareness/>*

# *Questions/Comments*

Contact us at  
[www.harfordcountyhealth.com](http://www.harfordcountyhealth.com)



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