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Massachusetts Department of Public Health

Response to Community Concerns about the Incidence of Brain Cancer near the Former National Fireworks Site in Hanover

Public Meeting

September 24, 2019

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Topics

1. General cancer information
2. How DPH evaluates patterns of cancer
3. Previous findings in Hanover
4. Current screening-level review
5. Challenges and limitations



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General Cancer Information

- Different types of cancer are different diseases with separate risk factors.
 - A risk factor is anything that increases a person's chance of developing cancer, such as:
 - Hereditary conditions
 - Medical conditions or treatments
 - Lifestyle factors
 - Environmental exposures



General Cancer Information (continued)

- Many cancers occur because of changes to cells that happen by chance.
- Other times, exposure to certain chemicals (carcinogens) can cause cancer.
- Cancer takes a long time to develop and may vary depending on age, genetic factors, and intensity of an exposure.
 - Most are thought to take anywhere from 10 to over 50 years to appear.

How DPH evaluates patterns of cancer

- An unusual pattern of cancer would show:
 - A large number of diagnoses of one type of cancer in a relatively short period of time rather than several different types diagnosed over a long period of time
 - Rare types of cancer rather than common types
 - An increased number of diagnoses of a certain type of cancer in an age group not usually affected by that type



Previous Findings in Hanover - 2012

- During 2004-2008, the majority of 23 cancer types reported by the Massachusetts Cancer Registry occurred about as expected.
- A statistically significant elevation occurred in one cancer type – ovarian cancer.
 - A review of risk factors and geographic distribution did not show unusual patterns.
- Thyroid cancer in females was elevated (but not statistically significant).



Previous Findings in Hanover (continued)

- Incidence of thyroid cancer was elevated among females during 1999-2008.
 - Over half lived at their residence for less than 10 years prior to diagnosis.
 - No unusual patterns emerged with respect to age at diagnosis, thyroid cancer subtypes, or geographic distribution.
 - Increased incidence was consistent with statewide and national trends.

Current Screening-Level Review

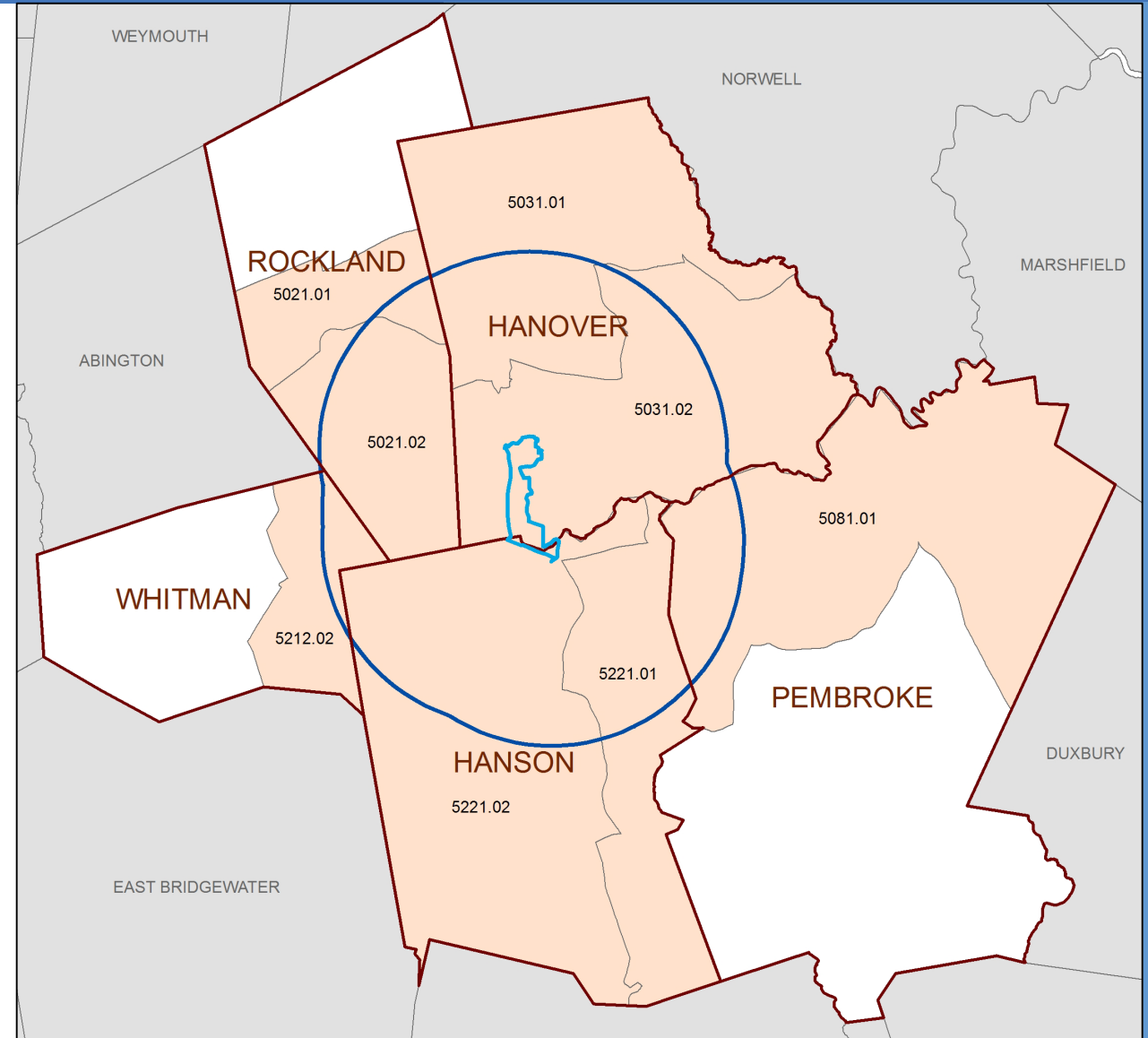
- In response to community concerns of a possible elevation in brain cancer near the former National Fireworks site, MDPH will review:
 - the incidence of brain and other nervous system cancers
 - over a 30-year time period
 - using data collected by the Massachusetts Cancer Registry.



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MDPH Evaluation Area

- Census tracts (CTs) are small areas for which reliable disease rates can be calculated.
- 8 CTs that include the area within 2 miles of the former National Fireworks site

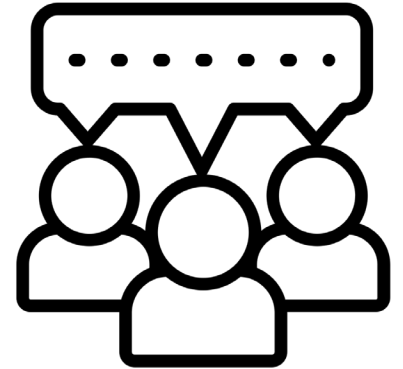


Established Risk Factors for Brain & ONS Cancers

- After a peak in childhood (generally under age 10), the risk increases with age between 25 and 75 years
- Most established risk factor is high-dose exposure to ionizing radiation
- Some hereditary syndromes (e.g., neurofibromatosis types I and II, Li-Fraumeni syndrome, and tuberous sclerosis)
- Most brain and other nervous system cancers develop for no apparent reason and are not associated with specific risk factors.

Sharing Results

- Summary data will be provided; no personal health information
- Letter with findings will be sent to Health Agents in 5 towns
- Findings will be posted on DPH website for the public
- DPH staff will be available to answer any follow-up questions



Challenges and Limitations

- Number of diagnoses is often small.
- Cancer takes a long time to develop.
- MCR is based on residential address at time of diagnosis.
- Information on personal risk factors is unknown.
- Cannot determine the cause of any one individual's cancer.





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Thank You!

For questions about health concerns or this review of health data:

Massachusetts Department of Public Health
Bureau of Environmental Health
www.mass.gov/dph/environmental_health
Phone: **617-624-5757**

If you are experiencing symptoms or have medical care questions, MDPH always recommends consulting with your health care provider.