

Investigation of Rhabdomyosarcoma (RMS) Cases in the Rye Area: Surveillance Report Update

May 10, 2017

Following publication of the original report “Investigation of Rhabdomyosarcoma (RMS) Cases in the Rye Area” on February 2, 2016, there was increased community concern and additional reports of children with rhabdomyosarcoma (RMS) who potentially had visited the Seacoast area which prompted further investigation into possible common exposures among children diagnosed with RMS or pleuropulmonary blastoma (PPB). The findings of this expanded investigation are reported here:

<https://www.dhhs.nh.gov/dphs/gtfsc/documents/investigation-summary-04302017.pdf>

NH DHHS has also continued to monitor the New Hampshire State Cancer Registry for any additional cases of RMS or PPB as part of the follow-up plan to the initial cancer cluster investigation for the five-town area of Rye and the surrounding four towns. Findings for the updated analysis are discussed in this brief report. Since the publication of the original report in February 2016, there have been no new cases of either RMS or PPB in the original five-town area of investigation, or the broader 10-town Seacoast area, which was part of the expanded DHHS cancer cluster investigation.

Similar to the original report, standardized incidence ratios (SIRs) were calculated to evaluate cancer incidence in the five-town area; a detailed description of the methodology and rationale can be found in the original report: <https://www.dhhs.nh.gov/dphs/hsdm/cancer/documents/rhabdomyosarcoma2016.pdf>. The updated SIR calculations shown below use updated data through December 2015 from the New Hampshire State Cancer Registry. At the time the original report was published, the Cancer Registry data were estimated to be 90% complete through 2014. This updated analysis includes cancer cases diagnosed through 2015 (reporting expected to be 90% complete for 2015), and any additional cases diagnosed from earlier years. SIRs were calculated for RMS, PPB, and other pediatric cancers in the five-town area using the rest of Rockingham County as a reference population. Because of reported concerns specific to pancreatic cancer in the Rye area, we also updated our analysis of pancreatic cancer incidence for the 5-town Seacoast area from the original report; these numbers represent pancreatic cancer for all ages, but cases were all diagnosed in adults as there were no pediatric pancreatic cancer cases.

Key Findings from the updated analysis of pediatric cancers:

- Over an 11 year period from 2005 to 2015, there were a total of 19 children with any malignant cancer reported to the NH Cancer Registry. This number is not significantly different from the expected number (Table 1).
- No additional cases of pediatric RMS or PPB (listed as “Lung and Bronchus” in Table 1) have been identified since the original report and the SIR for both are similar compared to the original report.
- The number of Brain and Other Central Nervous System (CNS) cancers reported increased from 6 cases to 7 in the updated analysis. The SIR for Brain and CNS cancers remained the same (Table 1), although

the confidence intervals have narrowed moving the estimated SIR from being borderline significant to a statistically significantly estimate. On further investigation, however, the seven reported cases of brain and other CNS tumors are a diverse group of cancers (not a single common cancer), and are comprised of four different types of cancers, including pilocytic astrocytoma, malignant glioma, medullary blastoma, and atypical teratoid/rhabdoid tumor. Therefore, this would not meet the definition of a cancer cluster, which requires multiple cases of the same histological type of cancer. Based on expressed community concerns about brain cancers in children, we will continue to evaluate reported concerns based on our existing cancer cluster investigation protocol looking at number, specific type of cancer, and location of reported concern.

- The SIRs for all pediatric cancers combined, leukemia, and Non-Hodgkin’s Lymphoma were not significantly elevated, and were the same as those in the original report (Table 1).

Table 1. Standardized Incidence Ratios (SIRs) for all cancers and rhabdomyosarcoma in the five-town area using the rest of Rockingham County as a reference population, 2005-2015.

Pediatric cancers 2005-2015	Expected # of Cases	Observed # of Cases	SIR	95% Lower CI	95% Upper CI
All Pediatric Cancers	17.4	19	1.1	0.7	1.7
Rhabdomyosarcoma	<1*	<5*	5.9	1.9	18.4
Brain and Other CNS	3.1	7	2.2	1.1	4.7
Leukemia	<5*	<5*	1.3	0.4	3.9
Lung and Bronchus (PPB)	<1*	<5*	20.2	5.1	80.9
Non-Hodgkin’s Lymphoma	<5*	<5*	0.5	0.1	3.3

* When the number of observed cases is less than 5, data that would allow that number to be calculated cannot be published.

CNS = Central Nervous System
 SIR = Standardized Incidence Ratio
 CI = Confidence Interval

Key Findings from the updated analysis of pancreatic cancer (all ages):

- The number of new pancreatic cancers (all ages) in the five-town area was not significantly higher than expected when compared to the rest of Rockingham County. The number of reported cases of pancreatic cancer increased from 71 cases to 78 in the updated analysis (7 new cases since the original report in February 2016); all cases of reported pancreatic cancer were in adults. The expected number of new pancreatic cancers in the five-town region based on numbers seen in Rockingham County is on average 6-7 cases each year (Table 2).

Table 2. Standardized Incidence Ratios (SIR) for pancreatic cancer (all ages) in the 5-town area using the rest of Rockingham County as a reference population.

Cancer Type (all ages), 2005-2015	Expected # of Cases	Observed # of Cases	SIR	95% Lower CI	95% Upper CI
Pancreas	70.2	78	1.1	0.9	1.4

SIR = Standardized Incidence Ratio
 CI = Confidence Interval